Public Safety Interoperable Communications Grant Program

Programmatic Environmental Assessment

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Programmatic Environmental Assessment for the Public Safety Interoperable Communications (PSIC) Grant Program

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
ACHP	Advisory Council on Historic Preservation
AIRFA	American Indian Religious Freedom Act
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
AQMD	Air Quality Management District
BA	Biological Assessment
BMP	Best Management Practice
C&D	Construction and Demolition
CAA	Clean Air Act
CATEX	Categorical Exclusion
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
COLT	Cell-On-Light-Truck
COW	Cell-On-Wheels
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
dB	Decibel
dBA	A-weighted Decibel
DHS	Department of Homeland Security
EA	Environmental Assessment
EDA	Economic Development Administration
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Committee
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWS	United States Fish and Wildlife Service
GDP	Gross Domestic Product
GPD	Grant Programs Directorate

H.R.	House of Representatives
HAP	Hazardous Air Pollutants
HSGP	Homeland Security Grant Program
kW	Kilowatt
LEED	Leadership in Energy and Environmental Design
LESA	Land Evaluation and Site Assessment
LWCFA	Land and Water Conservation Fund Act
MHz	megahertz
mg/m^3	milligrams per cubic meter
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NO_2	Nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
NTIA	National Telecommunications and Information Administration
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated biphenyls
PEA	Programmatic Environmental Assessment
PM	Particulate matter
ppm	parts per million
PSIC	Public Safety Interoperable Communications
PSWAC	Public Safety Wireless Advisory Committee
Pub. L.	Public Law
RCRA	Resource Conservation and Recovery Act
RWQCB	Regional Water Quality Control Board
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan

SO_2	Sulfur dioxide
SOP	Standard Operating Procedures
SOW	Site-On-Wheels
SPCC	Spill Prevention, Control, and Countermeasure
STORET	STOrage and RETrieval System for Water and Biological Monitoring Data
SWRCB	State Water Resources Control Board
TCNS	Tower Construction Notification System
TCP	Traditional Cultural Properties
THPO	Tribal Historic Preservation Office
tpy	Tons per year
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USGBC	U.S. Green Building Council
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
VSAT	Very Small Aperture Terminals

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EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) provides an assessment of the expected environmental impacts associated with the proposed Public Safety Interoperable Communications (PSIC) Grant Program, administered by the National Telecommunications and Information Administration (NTIA) of the U.S. Department of Commerce. The proposed implementation of the PSIC Grant Program would involve a wide variety of projects designed to improve interoperable communications among public safety agencies.

On September 11, 1996, the Public Safety Wireless Advisory Committee (PSWAC) delivered its final report to the Federal Communications Committee (FCC) defining state and local public safety's critical need for additional spectrum to support emergency communication systems. Public safety interest groups worked for a decade to address the PSWAC findings and to ensure that resources would be available to support State and local agencies in their migration to new spectrally efficient, interoperable communications systems. Their efforts culminated in the creation of the PSIC Grant Program led by NTIA and the U.S. Department of Homeland Security (DHS) to assist State, local, tribal, and nongovernmental agencies in developing interoperable communications as they leverage the newly available spectrum in the 700-megahertz (MHz) band.

The Call Home Act of 2006 and the Implementing the 9/11 Commission Recommendations Act of 2007 further emphasized the criticality of the PSIC Grant Program for improving nationwide interoperable communications. In developing the parameters of the program, NTIA and DHS identified multiple technology and all-hazards mitigation priorities including the adoption of advanced technological solutions, improvement of spectrum efficiency and of communications in high-risk areas, and pre-positioning of secure interoperable communications in anticipation of natural or man-made disaster events.

PURPOSE AND NEED

The purpose of the PSIC Grant Program is to improve interoperability and reliability in the nation's communications and information systems infrastructure by assisting public safety agencies in doing the following:

- Conducting Statewide or regional planning and coordination
- Supporting the design and engineering of interoperable emergency communications systems
- Supporting the acquisition or deployment of interoperable communications equipment or systems
- Obtaining technical assistance and conducting training exercises related to the use of interoperable emergency communications equipment and systems
- Establishing and implementing a strategic technology reserve to pre-position or secure interoperable communications in advance so that they may be immediately deployed in an emergency or major disaster (Public Law [P.L.] 110–53, §2 (a)(1)(A)).

NTIA was granted authority to carry out the PSIC Grant Program, in coordination with DHS, to assist public safety agencies with the acquisition, deployment, and training of interoperable communications systems. All 50 States, 5 Territories, and the District of Columbia were awarded a total of $968,385,000 in PSIC funding to be spent on addressing these stated needs. Each State, Territory, and the District of Columbia has proposed a series of investments (or groups of individual projects) that are designed to accomplish a single overall goal. Investments that received funds range from large-scale infrastructure build-outs (e.g., tower construction) to governance-related initiatives (e.g., multijurisdictional strategic planning). Investments were reviewed by panels of Federal, State, and local subject matter experts in the fields of

communications, grants management, and public safety operations to provide recommendations for proposed funding. Use of each State and Territory's funding is now contingent on the grantees' compliance with special conditions applied to each award. These conditions may include compliance with all applicable environmental and historic preservation laws, which state that work may not begin until an environmental review and evaluation of the project are complete.

SCOPE OF THE PEA

This PEA examines the direct, indirect, and cumulative environmental impacts associated with the proposed implementation of the PSIC Grant Program. This document has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality (CEQ) regulations for implementing NEPA.

A programmatic environmental document, such as this PEA, is prepared when an agency is proposing to carry out a broad action, program, or policy. NTIA and DHS have determined that implementation of the proposed PSIC Grant Program is a broad action with nationwide implications. The programmatic approach creates a comprehensive, global analytical framework that assesses impacts expected from the program as a whole. It also supports subsequent site-specific environmental analyses that may be required to determine the nature and extent of impacts resulting from individual actions at site-specific locations within the overall program once they are identified. It also allows NTIA and DHS to identify those project types that will not have any impact to the environment and distinguish them from those that may require further analysis.

This PEA is intended to examine the project types proposed under the PSIC Grant Program, which have been organized into the following five groups, and align with the major components of interoperable communication systems:

Transmission and Receiving Sites. Upgrade existing transmission and receiving sites and construct new sites to address all voice, data, video, and interoperability requirements. Projects will include the upgrade or new construction and installation of communications towers, equipment shelters, generators and backup power systems, repeaters, gateways, voice over Internet Protocol, microwave backhauls, fiber optic cable, antennae, and access roads to sites. This will also include equipment and activities associated with channel assignments and shared and mutual aid channels. Coordinating antenna interference reviews is also part of this activity. The average site is approximately 0.5 acres. Sites using guyed towers require additional land.

New or retrofitted transmitting and receiving sites would be constructed or retrofitted to:

- Update equipment to new frequencies that would improve and expand voice coverage
- Add data and video capabilities
- Facilitate reliable interoperable communications among first responder organizations.

Operations and Response Centers. Construct, remodel, or retrofit existing fixed-structure dispatch centers or first-responder facilities to take advantage of new communications infrastructure to increase responder capacity. Centers potentially would be incorporated within an existing building with interior space for radio, telephone, and Internet communications equipment, dispatch computer consoles, gateways, the transmitting and receiving of equipment and channels, backup power generators, and fuel storage. The centers would be served by utility lines. Centers can vary substantially in average size on the basis of a number of factors, including collocation of functions (i.e., multiple emergency operations functions housed in a single facility versus a single agency) and planned capacity of the center. Most sites would be expected to be approximately 1 acre in size, with some as large as 5 acres.

Most projects for operations and response centers are expected to be upgrades (renovations) or expansions to current centers in existing buildings, which would:

- Utilize new frequencies and sources
- Increase the volume of calls that can be handled
- Expand the coverage area of emergency responders connected through the system.

Mobile Infrastructure. Acquire and deploy nonfixed infrastructure equipment and incident command equipment. This would include mobile command vehicles and trailers, cell-on-wheels (COW), cell-on-light-truck (COLT), and site-on-wheels (SOW) equipment, portable towers and antennae, mobile gateways, mobile data terminals, and very small aperture terminals (VSAT).

Mobile/Portable Equipment. Acquire and deploy subscriber units and similar equipment. This would include mobile and handheld radios and satellite phones, radio caches, and battery packs.

Planning, Training, and Exercises. Conduct single- and multi-event activities, including both classroom-based and field-based training, to prepare first responders and support personnel to use interoperability communications equipment in a coordinated and efficient manner.

Description of the Proposed Action and Alternatives to Implement the Proposed Action

Five alternatives for implementation of the PSIC Grant Program were considered. Three alternatives, including the No Action Alternative, are proposed for evaluation in meeting the purpose and need of the program. Two alternatives were found not to meet the purpose and need and, therefore, were not carried forward for detailed evaluation.

Alternatives Analyzed in Detail

Alternative 1 (Preferred Alternative)

The Preferred Alternative would implement all PSIC-funded projects, eliminating gaps in coverage. This alternative applies to all investments and expedites widespread improvements to public safety interoperability communications in the shortest period of time. This alternative enables the PSIC Grant Program to meet its statutory September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds.

Alternative 2 (Previously Disturbed Sites Only)

Alternative 2 would involve restricting the scope of the program to funding those projects with a reduced environmental impact when compared with the Preferred Alternative. Only projects occurring at existing or previously disturbed sites would be funded. No projects planned for previously undisturbed sites, sometimes referred to as greenfield sites[1], would be funded nor would projects that substantially increase the environmental footprint of a site. This selective implementation of projects would enable upgrades to the interoperable communications system on a widespread basis, with minimal environmental impacts. The environmental impact analysis of most projects funded under this alternative would be streamlined by using existing data and previous analyses conducted for the earlier projects at these sites. Use of only existing and disturbed sites with existing environmental data, should result in faster regulatory reviews and ensure that all projects in this alternative meet the PSIC Grant Program's September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds.

[1] The U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program defines greenfields as sites "that are not previously developed or graded and remain in a natural state. Previously developed sites are those that previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities" (USGBC, 2006).

No Action Alternative

Under the No Action Alternative, funding for interoperable communications and information systems infrastructure would not be released and infrastructure would neither be developed nor enhanced. Ongoing maintenance activities would continue using current funding sources; however, no new activities would be funded with PSIC funding. It is assumed that projects proposed for PSIC grant funding would not go forward with any alternate funding sources. The No Action Alternative will serve as the baseline for assessing the impacts of the other alternatives. The No Action Alternative would not address the need of the PSIC Grant Program as required by the Digital Television Transition and Public Safety Act of 2005, nor would the alternative meet the PSIC Grant Program's September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds.

Alternatives Not Carried Forward

One alternative reviewed and not carried forward would have prioritized interoperability communications investments funding only those projects found to be the most critical because of high risk, as determined by the Homeland Security Grant Program (HSGP) risk formula. Under this scenario, only projects located in areas classified as Tier I and Tier II Urban Areas under the HSGP formula would be implemented.[2] These Tier I and Tier II areas are made up exclusively of the most populous cities throughout the United States and do not include any rural areas. Therefore, public safety interoperability projects in rural areas would not be funded by the PSIC Grant Program. This alternative would not meet the purpose and need of the Proposed Action, because it would fail to make meaningful improvements to interoperable communications on a national level by excluding communications improvements to rural areas outside the Tier I and Tier II Urban Areas.

The final alternative considered and dismissed would require the use of advanced technological solutions to meet the purpose and need of the Proposed Action, while minimizing environmental impacts. Minimizing environmental impacts may be possible through project modifications and relocations of projects originally slated for previously undisturbed sites. Proposed investments tend to rely on a pool of commonly used and effective technologies. Furthermore, most mitigation measures that would be used to minimize any environmental impacts of such projects through the use of technology would also draw from this same pool of commonly used technologies. This alternative would require States and Territories to change technology proposed for use in PSIC projects, if there were proven advanced technologies that would also reduce the environmental impact of the project. These alternative technologies are expected to be outside the traditional pool of commonly used technologies. Acceptance by the user community would be slow to come, and the vetting process for new technologies would not be compatible with the short time horizon for PSIC grant funds.

SUMMARY OF ENVIRONMENTAL IMPACTS

Examination of the five types of projects revealed that the transmitting and receiving sites, operations and response centers, and the field-based exercise portion of planning, training, and exercises would likely involve ground-disturbing activities with resultant potential for environmental impacts at the site-specific level. Projects for the acquisition of mobile infrastructure, mobile and portable equipment, planning, and training are not likely to require any ground-disturbing activity and have only minor impacts to air and water quality; thus, they are unlikely to result in any environmental impacts. The environmental consequences on 11 resource areas of each alternative are evaluated, by project type, in Chapter 4, and detailed

[2] FY 2008 HSGP Guidance and Application Kit, February 2008. Available at: http://www.fema.gov/pdf/government/grant/hsgp/fy08_hsgp_guide.pdf.

findings and conclusions for each alternative are presented in Chapter 5. This PEA determined that transmitting and receiving sites involving new towers 200 or more feet above the ground, guyed towers, and ground disturbances of 1 acre or more all require that a site-specific Environmental Assessment (EA) be prepared. Upgrades and retrofits of existing response centers and new response centers involving 1 acre or more of ground-disturbing activity will require that a site-specific EA or possibly an Environmental Impact Statement (EIS) be prepared. Exercises to be conducted at previously undisturbed sites that would involve ground disturbance of 1 acre or more will require preparation of a site-specific environmental assessment.

All PSIC projects will be screened against the criteria below, before determining that they are covered by the finding of no significant impact expected for this PEA.

Regardless of the project group, all individual projects must be reviewed to determine if the project will involve extraordinary circumstances, defined as an otherwise benign project that involves unusual risks or impacts. The criteria for this determination are listed below. If one or more of the following conditions exists, an EA must be prepared for the project:

- A potentially significant impact on public health and safety
- A potentially significant impact on species or habitats protected by the Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), the Migratory Bird Treaty Act (MBTA), or Magnuson-Stevens Fishery Conservation and Management Act (MSA)
- A potentially significant impact on a district, site, highway, structure, or object that is listed in or eligible for listing in the National Register of Historic Places, affects a historic or cultural resource or traditional and sacred sites, or causes the loss or destruction of a significant scientific, cultural, or historical resource
- A potentially significant impact on an environmentally sensitive area, such as critical habitat, wetlands, and floodplains
- A potential or threatened violation of a Federal, State, or local law or administrative determination imposed for the protection of the environment (Examples of administrative determinations to consider are a local noise control ordinance; the requirement to conform to an applicable State Implementation Plan (SIP); and Federal, State, or local requirements for the control of hazardous or toxic substances.)
- An impact on the quality of the human environment that is likely to be highly controversial with regard to scientific validity, likely to be highly uncertain, or likely to involve unique or unknown environmental risks
- Employment of new technology or unproven technology that is likely to involve unique or unknown environmental risks, where the impact on the human environment is likely to be highly uncertain, or where the impact on the human environment is likely to be highly controversial in regard to scientific validity
- Extent to which a precedent is established for future actions with significant impacts
- Potential for significant degradation of existing poor environmental conditions, and initiation of a potentially significant environmental degrading influence, activity, or impact in areas not already significantly modified from their natural condition
- Action related to other actions with individually insignificant but cumulatively significant impacts.

The Preferred Alternative (Alternative 1) would require more specific EAs, because it would allow the use of previously undisturbed sites. This may be required to implement the PSIC projects in the optimal locations, in achieving maximum system coverage, to meet the purpose

and need. That determination will have to be made as the site-specific project proposals are received and reviewed. The use of existing sites that can be upgraded or retrofitted to meet the need are available is preferred.

1.0 INTRODUCTION

On September 11, 1996, exactly 5 years before the tragic events of 9/11 revealed the deficiencies in interoperable communications, the Public Safety Wireless Advisory Committee (PSWAC) delivered its final report to the Federal Communications Committee (FCC) defining State and local public safety's critical need for additional spectrum.

Since 1996, public safety agencies and interest groups have worked to address the PSWAC findings and obtain funding to support State and local agency migration to new spectrally efficient, interoperable communications systems. Their efforts culminated in the Congressionally authorized $1 billion Public Safety Interoperable Communications (PSIC) Grant Program led by the National Telecommunications and Information Administration (NTIA) of the Department of Commerce and the Department of Homeland Security (DHS). The purpose of PSIC is to assist State, local, tribal, and nongovernmental agencies in developing interoperable communications as they leverage newly available spectrum in the 700 megahertz (MHz) band.

The Call Home Act of 2006 and the Implementing the 9/11 Commission Recommendations Act of 2007 further emphasized the need of the PSIC Grant Program for improving nationwide interoperable communications. Eleven years after the PSWAC report, as co-administrators of the PSIC Grants Program, the Department of Commerce NTIA and the DHS Federal Emergency Management Agency (FEMA) Grant Programs Directorate (GPD) are meeting the challenge to substantially improve U.S. public safety communication.

To comply with the intent of Congress and to use the large majority of funding for tangible improvements to U.S. communication systems, NTIA and GPD must efficiently use resources to establish, execute, and close out the one-time PSIC Grant Program. As a condition of grant funding, PSIC grantees must comply with all relevant Federal legislation, including the National Environmental Policy Act (NEPA).

NEPA requires all Federal agencies to analyze the possible environmental impacts of actions that a Federal agency implements, funds, permits, or licenses (e.g., a construction project), provided the Federal agency retains some level of control or discretion. The purpose of a NEPA review is to inform Federal decision makers about the environmental impacts associated with their projects (for example, impacts on water resources, endangered species, historical buildings, archaeological resources, or culturally sensitive areas) before construction so that they may make informed planning decisions. As described in this document, NEPA and related environmental and historic preservation regulations must be considered in managing PSIC grants. As the responsible party for oversight of all PSIC funds, NTIA thereby puts forth this Programmatic Environmental Assessment (PEA) for review and consideration as it applies to all PSIC-funded projects, ranging from large technical modernization efforts through operational planning and training activities.

1.1 NEED FOR THE PSIC GRANT PROGRAM

NTIA was given authority to carry out the PSIC Grant Program in coordination with DHS to assist public safety agencies with the acquisition, deployment, and training of interoperable communications systems. In developing the parameters of the PSIC Grant Program, NTIA and DHS identified the following technology and all-hazards mitigation priorities (Department of Commerce, 2007):

Technology
- Adopt advanced technological solutions
- Improve spectrum efficiency
- Use cost-effective measures

All-hazards mitigation

- Improve communications in areas at high risk for natural disasters
- Continue to improve interoperability communications efforts in urban and metropolitan areas at high risk for threats of terrorism
- Pre-position or secure interoperable communications in advance for immediate deployment in an emergency or major disaster.

All 50 States, 5 Territories, and the District of Columbia will share PSIC awards totaling $968,385,000 in PSIC funding to be spent on planning, acquisition, deployment, and training on interoperable communication systems. Each State, Territory, and the District of Columbia has proposed a series of investments, which are defined as groups of individual projects that are designed to accomplish a single overall goal. Investments that received PSIC funding range from large-scale infrastructure build-outs (e.g., tower construction) to governance-related initiatives (e.g., multijurisdictional strategic planning). Investments were reviewed by panels of Federal, State, and local subject matter experts in the fields of communications, grants management, and public safety operations. Full release of each State and Territory's funding is now contingent on the grantees' compliance with special conditions applied to each award.

1.2 PURPOSE OF THE PSIC GRANT PROGRAM

The NTIA has specified that PSIC-funded projects must be used for projects that would improve communications in areas at high risk for natural disasters and in urban and metropolitan areas at high risk for threats of terrorism, and should include pre-positioning or securing of interoperable communications for immediate deployment during emergencies or major disasters. The purpose of the PSIC Grant Program is to improve interoperability and reliability in the nation's communications and information systems infrastructure by assisting public safety agencies in doing the following:

- Conducting Statewide or regional planning and coordination
- Supporting the design and engineering of interoperable emergency communications systems
- Supporting the acquisition or deployment of interoperable communications equipment or systems
- Obtaining technical assistance and conducting training exercises related to the use of interoperable emergency communications equipment and systems
- Establishing and implementing a strategic technology reserve to pre-position or secure interoperable communications in advance so they may be immediately deployed in an emergency or major disaster (Public Law [P.L.] 110–53, §2 (a)(1)(A)).

Although neither the authorizing statute nor its legislative history specifies how grant funds are to be distributed, NTIA and DHS have agreed that the PSIC Grant Program should establish a baseline level of interoperable communications among the nation's States and Territories. To ensure meaningful improvements to nationwide interoperable communications, each State, the District of Columbia, and Puerto Rico will receive a minimum of $3 million, while each of the other Territories (American Samoa, Guam, Northern Marina Islands, and the United States [U.S.] Virgin Islands) will receive a minimum of $500,000 to upgrade interoperable communications systems.

More than 80 percent of the remaining funding is allocated to the States, Territories, and the District of Columbia on the basis of a formula similar to the current Homeland Security Grant Program (HSGP) risk formula. Although higher risk areas are allocated more funding under this formula, funding is allocated throughout all areas of the 50 States, 5 Territories, and the District of Columbia to ensure nationwide upgrades in interoperability. All recipients are subject to a requirement to provide non-Federal matching funds on certain types of investments. The PSIC

allocation formula includes three major variables: threat, vulnerability, and consequence. The threat variable is a measure of risk for terrorism events. Vulnerability and consequence variables account for the relative severity of the effects of probable disasters, regardless of disaster type, and include factors for area population, economic output, the presence of nationally critical infrastructure, and national security concerns. Because of the all-hazards nature and impact of interoperable communications capabilities, the PSIC allocation formula weights the threat variable at 10 percent and the combined vulnerability and consequence variables at 90 percent. The State-by-State funding levels are included in Appendix A.

This PEA describes program-level environmental impacts of the PSIC Grant Program, and defines those proposed PSIC-funded project types that would require further analysis before a determination of environmental impacts could reasonably be made. The NEPA compliance review of specific projects under the PSIC Grant Program could result in projects (1) needing to be modified or redesigned to reduce or eliminate environmental impact, (2) requiring an individual site-specific Environmental Assessment (EA) to evaluate the potential for environmental impact, or (3) an Environmental Impact Statement (EIS) developed to assess the extent of the environmental impact of the project.[3]

[3] The Department of Commerce has NEPA procedures for the Economic Development Administration (EDA) and the National Oceanic and Atmospheric Administration (NOAA). All other agencies within Commerce, and the PSIC program, are subject to the Council on Environmental Quality (CEQ) NEPA general regulations by default, 40 Code of Federal Regulations (CFR) Part 1500. CEQ does not have categorical exclusions (CATEX) that can be used to approve a project, and therefore either a PEA or an EA is the first review undertaken for NEPA determination.

2.0 PROPOSED ACTION

The Proposed Action would allow the PSIC Grant Program to fund the following five project types, which would support the development of interoperability communication networks among all 50 States, 5 Territories, and the District of Columbia:

Transmission and Receiving Sites. Upgrade existing transmission and receiving sites and construct new sites to address all voice, data, video, and interoperability requirements. Projects will include the upgrade or new construction and installation of communications towers, equipment shelters, generators/backup power systems, repeaters, gateways, voice over Internet Protocols, microwave backhauls, fiber optic cable, antennae, and access roads to sites. This will also include equipment and activities associated with channel assignments and shared and mutual aid channels. Coordinating antenna interference reviews is also part of this activity. The average site is approximately 0.5 acres. Sites using guyed towers require additional land.

New or retrofitted transmitting and receiving sites would be constructed or retrofitted to do the following:

- Update equipment to new frequencies that would improve and expand voice coverage
- Add data and video capabilities
- Facilitate reliable interoperable communications among first responder organizations.

Operations and Response Centers. Construct, remodel, or retrofit existing fixed-structure dispatch centers or first-responder facilities to take advantage of new communications infrastructure to increase responder capacity. Centers potentially would be incorporated in an existing building with interior space for radio, telephone, and Internet communications equipment, dispatch computer consoles, gateways, transmitting and receiving equipment and channels, backup power generators, and fuel storage. The centers would be served by utility lines. Centers can vary substantially in average size, based on a number of factors including collocation of functions (i.e., multiple emergency operations functions housed in a single facility versus a single agency), and the planned capacity of the center. Most sites would be expected to be approximately 1 acre in size, with some as large as 5 acres.

Most projects for operations and response centers are expected to be upgrades (renovations) or expansions to current centers in existing buildings, which would do the following:

- Utilize new frequencies and sources
- Increase the volume of calls that can be handled
- Expand the coverage area of emergency responders connected through the system.

Mobile Infrastructure. Acquire and deploy nonfixed infrastructure equipment and incident command equipment, including mobile command vehicles and trailers, cell-on-wheels (COW), cell-on-light-truck (COLT), and (SOW) equipment, portable towers and antennae, mobile gateways, mobile data terminals, and very small aperture terminals (VSAT)

Mobile/Portable Equipment. Acquire and deploy subscriber units and similar equipment, including mobile and handheld radios and satellite phones, radio caches, and battery packs

Planning, Training, and Exercises. Conduct single- and multi-event activities, including both classroom-based and field-based training, to prepare first responders and support personnel to use interoperability communications equipment in a coordinated and efficient manner.

2.1 ALTERNATIVES CONSIDERED TO IMPLEMENT THE PROPOSED ACTION

The identification, consideration, and analysis of alternatives are integral to objective decision-making and are central to the NEPA process. Three alternatives, including the No Action Alternative, are proposed for evaluation in meeting the purpose and need. Each alternative

would implement the five project types mentioned above differently, however all alternatives are proposed as a way to meet the specific interoperability needs of the State or Territory in question. Alternatives will be compared for their individual environmental impacts.

Alternative 1 (Preferred Alternative)

Alternative 1 would implement all PSIC-funded projects simultaneously. This alternative expedites widespread improvements to public safety interoperability communications in the shortest period, improving readiness and response capacity. This alternative enables the PSIC Grant Program to meet its September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds. *This alternative will be examined in detail.*

Alternative 2 (Previously Disturbed Sites Only)

Alternative 2 would involve restricting the scope of the program to funding those projects with little or no environmental impact. Only projects occurring at existing or previously disturbed sites would be funded. No projects planned for previously undisturbed sites, sometimes referred to as "greenfield" sites,[4] would be funded, nor would projects that substantially increase the environmental footprint of a site. This selective implementation of projects would enable upgrades to the interoperable communications system on a widespread basis with minimal environmental impacts. The environmental impact analysis of most projects funded under this alternative would be streamlined by using existing data and previous analyses conducted for earlier projects at these sites. Furthermore, because the environmental impacts are low, interoperability projects in this alternative are expected to pass through the regulatory review and approval process faster than projects with greater impact. Use of only existing and disturbed sites with existing environmental data, and faster regulatory reviews, should ensure that all projects in this alternative meet the PSIC Grant Program's September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds. It may not be possible to implement this alternative for all sites, because existing locations may not provide the necessary coverage or be compatible with the new technology (i.e., there could be a frequency conflict at existing towers). *This alternative will be examined in detail.*

No Action Alternative

Under the No Action Alternative, funding for interoperable communications and information systems infrastructure would not be released, and infrastructure would neither be developed nor enhanced. Ongoing maintenance activities would continue using current funding sources; however, no new activities would be funded with PSIC grant funding. It is assumed that projects proposed for PSIC grant funding would not go forward with any alternate funding sources. The No Action Alternative will serve as the baseline for assessing the impacts of the other alternatives. The No Action Alternative would not address the need of the PSIC Grant Program as required by the Digital Television Transition and Public Safety Act of 2005, nor would the alternative meet the PSIC Grant Program's September 30, 2010, deadline (P.L. 109–71 §3006 (a)(2)) to expend all grant funds. *This alternative will be examined in detail and will serve as the baseline against which other alternatives will be examined.*

2.2 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

In evaluating ways to implement the PSIC Grant Program, multiple alternatives were examined to determine the range of reasonable alternatives to implement the Proposed Action. To be

[4] The U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program defines greenfields as sites "that are not previously developed or graded and remain in a natural state. Previously developed sites are those that previously contained buildings, roadways, parking lots, or were graded or altered by direct human activities" (USGBC, 2006).

considered a reasonable alternative or one that would meet the purpose and need of the Proposed Action, each alternative was required to meet the following criteria:

Make meaningful improvements to interoperable communications on a national level
Complete program implementation by the PSIC sunset date.

Two alternatives examined did not meet these selection criteria and therefore were not carried forward for detailed analysis in this PEA. They are described in further detail below.

High Priority and High Risk Projects

This alternative would prioritize interoperability communications investments and fund only those projects found to be the most critical because of high risk, as determined by the HSGP risk formula. Only projects located in areas classified as Tier I and Tier II Urban Areas under the HSGP formula would be implemented.[5] These Tier I and Tier II areas are made up exclusively of the most populous cities throughout the United States and do not include any rural areas. Therefore, projects to improve public safety interoperability in rural areas would not be funded by the PSIC Grant Program. This alternative would not meet the purpose and need of the Proposed Action, because by excluding communications improvements to rural areas outside the Tier I and Tier II Urban Areas, it would fail to make meaningful improvements to interoperable communications on a national level; *therefore, this alternative is not carried forward for further analysis in this document.*

Advanced Technological Solutions

This alternative would require the use of advanced technological solutions to meet the purpose and need of the Proposed Action, while minimizing environmental impacts. This may be possible through project modifications and relocations of projects originally slated for previously undisturbed sites. Proposed investments tend to rely on a pool of commonly used and effective technologies. Furthermore, most mitigation measures that would use technologies to minimize impacts would also draw from this same pool of commonly used and commonly available technologies. This alternative would require States and Territories to change technology proposed for use in PSIC projects if there were proven advanced technologies that would also reduce the environmental impact of the project. These alternative technologies are expected to be outside the traditional pool of commonly used technologies. Acceptance by the user community would be slow to come, and the vetting process for new technologies would not be compatible with the short time horizon for PSIC grant funds. *Therefore, this alternative is not carried forward for further analysis in this document.*

[5] FY 2008 HSGP Guidance and Application Kit, February 2008. Available at http://www.fema.gov/pdf/government/grant/hsgp/fy08_hsgp_guide.pdf.

3.0 EXISTING ENVIRONMENT

This section describes the existing environment that may be affected by implementing the Proposed Action and serves as a baseline from which to identify and evaluate potential impacts. The description of the affected environment focuses on those resource areas that are potentially subject to impacts resulting from the Proposed Action. Aspects of the existing environment described in this section focus on 11 major resource areas that encompass the natural, human, and built environments.

The PSIC Grant Program is national in scale and thereby has the potential to impact resources in all 50 States, 5 Territories, and the District of Columbia. The proposed projects to be funded by the program may be implemented in geographically diverse areas, including both urban and rural areas, as well as previously disturbed and undisturbed (greenfield) sites. All projects that compose the Proposed Action are terrestrial; none are proposed in aquatic or marine offshore areas.

Because of the wide variety of natural and human environments in which PSIC-funded grant projects are proposed and the complexity of resources potentially affected, it is not possible to provide a detailed comprehensive description of the affected environment in this document. Rather, in this document, the 11 resource areas (noise, air quality, geology and soils, water resources, biological resources, historic and cultural, land use, aesthetic and visual, infrastructure, socioeconomic resources, and human health and safety) are characterized at the national and regional level to assess the program as a whole and to identify those resources that may require additional site-specific follow-on NEPA analysis. As described in Chapter 1, development of site-specific NEPA documentation for PSIC-funded projects is the responsibility of the recipient of the Federal funds supported by the State, Territory, or the District of Columbia.

This section defines each resource area to establish its context and general characteristics at the program level. It also includes a discussion of existing conditions and applicable regulations to define the relevant considerations applicable to this PEA.

3.1 NOISE

3.1.1 Definition of Resource

Noise is defined as unwanted sound that interferes with normal human activities or wildlife behavior, or may otherwise diminish environmental quality (EPA, 1974). Noise can come from a number of sources and at varying frequencies and may be continuous or intermittent, persistent or occasional. Noise and sound share the same physical aspects; however, noise is generally considered a disturbance, whereas sound is defined as a particular auditory effect produced by a given source (e.g., a motor running). How sound is interpreted, as either pleasant (e.g., birdsong) or unpleasant (e.g., jackhammer), depends upon the listener's current activity, past experience, and attitude toward the source.

The measurement and perception of sound involve two physical characteristics: intensity and frequency. Intensity is a measure of the strength or magnitude of the sound vibrations and is expressed in terms of pressure. The higher the sound pressure, the more intense is the perception of that sound. The frequency of the sound is the number of times per second the sound oscillates. Sirens and screeches typify high frequency sounds, whereas low frequency sounds are characterized as a rumble or roar (EPA, 1974).

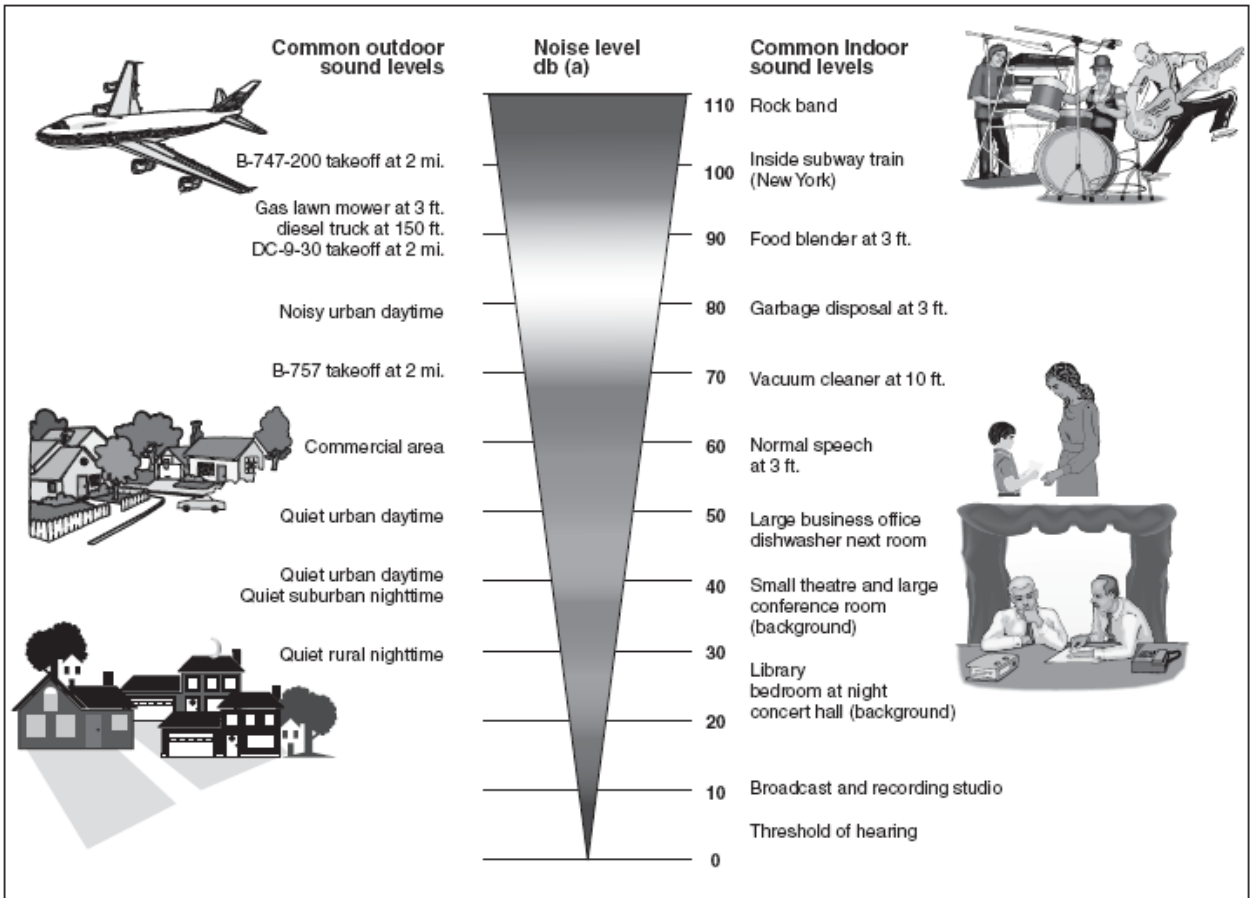
The sound pressure range that can be detected comfortably by the human ear is extremely large and covers an intensity scale from 1 to 100,000,000 (EPA, 1974). Because of this wide range of sound intensity, representation using a linear index becomes difficult. As a result, a unit

of A-weighted decibels (abbreviated dB or sometimes dBA)—a logarithmic measure of the magnitude of a sound as the average person hears it—is normally utilized. Humans do not hear very low or very high frequencies nearly as well as they hear middle frequencies. Using an A-weighting corrects these relative inefficiencies of the human ear at low or higher frequencies. To include the wide range of sounds heard every day, a logarithmic measure is applied. For this document, all noise levels will be expressed using the A-weighted scale.

Topographic features and structural barriers that absorb, reflect, or scatter sound waves can decrease or increase noise levels. In addition, atmospheric conditions (such as wind speed and direction, and weather) can also affect the perception of the sound. Animals use sounds for communication and navigation and to avoid danger and find food. The same noise factors that affect humans may also influence wildlife. In general, wildlife has a wider hearing range than humans, both on the low and high frequency ends of the noise spectrum. Noise studies, principally those on aircraft noise, have found varying results, ranging from no identifiable effects in some species, to noticeable behavioral and physiological effects in other species (e.g., birds) (EPA, 1980).

Sound intensity is measured in sound levels ranging from 0.0 dBA (generally the threshold of hearing) to 130 dBA (the threshold of pain). Figure 3-1 presents the sound levels of typical events. For example, conversational speech is measured at about 60 dBA, whereas a rock band may reach a level as high as 110 dBA.

Figure 3-1. Intensity of Typical Sounds



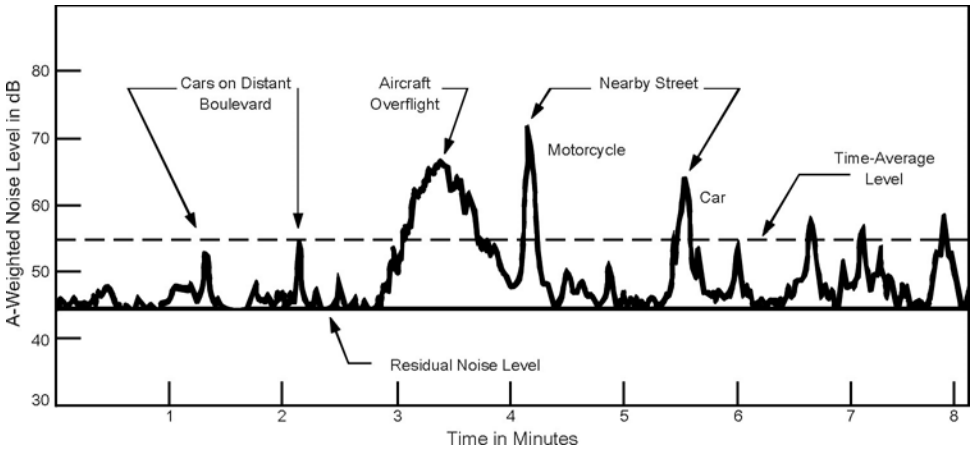
Source: GAO, 2007

3.1.2 Existing Conditions

Ambient Sound Levels

In a typical day, most people are exposed to sound levels of 50 to 55 dBA or higher. Typical outdoor noise levels in residential areas vary depending on the density and location of housing. Figure 3-2 depicts the noise levels of typical sounds of a suburban neighborhood.

Figure 3-2. Typical Sounds in a Suburban Neighborhood



Source: SAIA, 2008

Given the nationwide scope of the PSIC Grant Program, it is not possible to describe in detail the entire affected environment for noise. Site-specific noise issues will be addressed in detail and as necessary in project-specific NEPA documentation, once PSIC-funded project sites are finalized. Noise resulting from construction activities, from construction traffic using roadways, and the operation of backup generators for providing emergency power are the most likely sources of impacts related to the PSIC Grant Program activities, and therefore they have been selected for further discussion below.

Construction Sound Levels

Equipment used to construct, remodel, and demolish structures can generate sound levels that often exceed ambient sound levels. Trucks, graders, welders, and other construction equipment produce a variety of sounds. Table 3-1 identifies noise levels associated with commonly used construction equipment. Noise levels generated by individual types of construction equipment and specific construction operations form the basis for the predicted construction-related noise levels of specific projects.

Roadway Noise

Roadway noise is the collective sound energy emanating from motorized transportation comprising chiefly engine, tire, and aerodynamic and braking elements. The intensity of roadway noise is often caused by traffic operations (speed, truck mix, age of vehicle fleet), roadway surface type, tire types, roadway geometrics, terrain, and the structures or foliage in the area.

Table 3-1. Sound Levels for Construction Equipment

Equipment	Typical Noise Level (dBA) 50 Feet from Source
Air Compressor	81
Backhoe	80
Ballast Equalizer	82

Equipment	Typical Noise Level (dBA) 50 Feet from Source
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane Derrick	88
Crane Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Rock Drill	98
Roller	74
Saw	76
Scraper	89
Shovel	82
Truck	88

Source: FHWA, 2006.

Generator Noise

Generators are usually installed to provide only occasional backup electrical power for communications systems during an emergency. Generator engines are typically powered by diesel, propane, or natural gas. Noise from generators is primarily composed of engine noise and exhausts and will typically increase with the size of the generator. Additional information is presented in Section 4.1.1.2. on noise expected on the basis of generator size and fuel type.

3.2 AIR QUALITY

3.2.1 Definition of Resource

Air quality is measured by the concentration of various pollutants in the atmosphere, usually expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Air quality is a factor of the type and amount of pollutants emitted into the atmosphere, those that currently exist in the atmosphere, the size and topography of the air basin (e.g., airshed), and the prevailing meteorological conditions. PSIC projects could involve localized impacts to air quality as the result of emissions from construction equipment, supply vehicles, and generators; dust from construction and demolition activities and training exercises; and the release of minor amounts of volatile compounds from painting and fueling activities.

The Clean Air Act (CAA) (P.L. 88–206, 42 United States Code [U.S.C.] §7401) requires the adoption of National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare from the effects of air pollution. State CAAs are also used to manage air quality.

The Federal and State CAAs are executed using a three-point strategy:

1. Local controls for managing stationary, nonvehicular sources and permitting
2. State controls for setting emissions for motor vehicles, fuels, and consumer products
3. Federal controls of interstate pollutants.

To further support the goal of reduced emissions, State Implementation Plans (SIP) have been adopted as an approach to reduce air pollution, within States and multi-State regions. SIPs contain measures for reaching attainment status in each region, the primary standard for all air quality criteria. Although Federal and State governments play a critical role in managing the nation's air quality, the primary responsibility for implementation of the Federal Act is at the local level.

The CAA established two types of national air quality standards. *Primary standards* set limits to protect public health, including the health of sensitive populations (e.g., asthmatics, children, and the elderly). *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. The Environmental Protection Agency (EPA) periodically updates the NAAQS.

Current standards have been established for six common air pollutants, referred to as "criteria air pollutants." These are sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter equal to or less than 10 microns in size (PM_{10}), fine particulate matter equal to or less than 2.5 microns in size ($PM_{2.5}$), and lead (Pb). Compliance with the NAAQS means the ambient outdoor levels of these air pollutants are safe for human health, the public welfare, and the environment. Public welfare is considered to include the natural environment (vegetation) and the built environment (physical structures).

Air pollution emissions have the potential to harm both the natural and built environments and may come from a variety of sources (see Table 3-2). Carbon monoxide is generated by motor vehicles and wood burning and is considered a human health risk. Nitrogen dioxide is a product of combustion and can be seen as a brown haze. Organic gases react with nitrogen dioxide to form ozone, which causes low visibility and health effects that include respiratory disease and eye irritation. Particulate matter is a component of smoke and can have a variety of health effects, depending on its chemical composition. Sulfur dioxide, which is generated from burning fossil fuels, causes damage to vegetation and impacts the health of humans and animals. NAAQS provide a way to enforce air quality standards for the criteria air pollutants by establishing measurable maximum allowable amounts of various pollutants.

Table 3-2. National Ambient Air Quality Standards

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide (CO)	9 ppm (10 milligrams/ m^3 [mg/m^3])	8 hours	None	
	35 ppm (40 mg/m^3)	1 hour		
Lead (Pb)	0.15 $\mu g/m^3$	Rolling 3-month average	Same as primary	
	1.5 $\mu g/m^3$	Quarterly average	Same as primary	
Nitrogen Dioxide (NO_2)	0.053 ppm (100 $\mu g/m^3$)	Annual (arithmetic mean)	Same as primary	
Particulate Matter (PM_{10})	150 $\mu g/m^3$	24 hours	Same as primary	
Particulate Matter ($PM_{2.5}$)	15.0 $\mu g/m^3$	Annual (arithmetic mean)	Same as primary	
	35 $\mu g/m^3$	24 hours	Same as primary	
Ozone (O_3)	0.075 ppm (2008 std)	8 hours	Same as primary	
	0.08 ppm (1997 std)	8 hours	Same as primary	
	0.12 ppm	1 hour (applies only in	Same as primary	

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
		limited areas)		
Sulfur Dioxide (SO_2)	0.03 ppm	Annual (arithmetic mean)	0.5 ppm (1300 µg/m^3)	3-hours
	0.14 ppm	24-hours		

Source: EPA, 2008a.

When an area does not meet the air quality standard for one of the criteria pollutants, it may be subject to the formal rule-making process that designates it as Nonattainment. The CAA further designates Air Quality Management Districts (AQMD) in violation of the NAAQS as nonattainment areas. According to the severity of their exceedance of the NAAQS, nonattainment areas can be categorized as marginal, moderate, serious, severe, or extreme. Table 3-3 describes NAAQS nonattainment area exceedance levels assigned to an AQMD on the basis of tons per year (tpy) of emissions.

Table 3-3. NAAQS Nonattainment Area Exceedance Levels

Pollutant	Area Type	Tons/Year
Ozone (VOC or NO_x)*	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NO_x)*	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)*	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide (CO), SO_2, and NO_2	All nonattainment and maintenance	100
PM_{10}	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Lead (Pb)	All nonattainment and maintenance	25

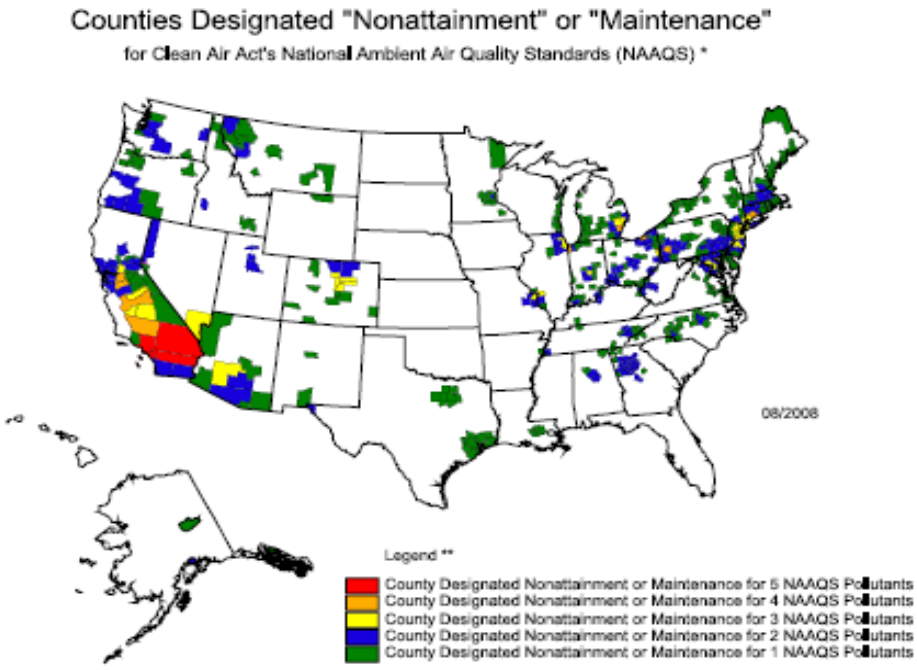
* Ozone (O_3) is a photochemical oxidant and the major component of smog. While O_3 in the upper atmosphere is beneficial to life by shielding the Earth from harmful ultraviolet radiation from the sun, high concentrations of O_3 at ground level are a major health and environmental concern. O_3 is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NOx) in the presence of sunlight. These reactions are stimulated by sunlight and temperature, so that peak O_3 levels occur typically during the warmer times of the year. Both VOCs and NOx are emitted by transportation and industrial sources. VOCs are emitted from sources as diverse as autos, construction equipment, chemical manufacturing, dry cleaners, paint shops, and other sources using solvents.
Source: GPO Access, 2008.

There are four ways in which the attainment status of an area may be described. The attainment status will determine whether air pollution control measures are required for an AQMD, and for which criteria air pollutants, since an area may be in attainment for some pollutants and in nonattainment for others. The four attainment classifications are:

1. **Nonattainment.** Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant
2. **Attainment.** Any area that meets the national primary or secondary ambient air quality standard for the pollutant
3. **Maintenance.** Areas that once violated the NAAQS (previous nonattainment areas) but now achieve the standards as a result of intensive management practices
4. **Unclassifiable.** Any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Figure 3-3 shows areas that have been designated as nonattainment for all criteria air pollutants.

Figure 3-3. Designated Nonattainment Areas for All Criteria Pollutants



Source: EPA, 2008b.

In addition to the criteria pollutants, air quality can also be impacted by hazardous air pollutants. These are chemicals that might not be as widespread as the criteria pollutants but are potentially more toxic (e.g., benzene and mercury). A list of 188 chemicals and compounds considered hazardous air pollutants was identified in the 1990 CAA Amendments. The EPA establishes the control technologies that must be used to control these emissions.

In addition to the Federal regulations governing hazardous air pollutants, many States have adopted their own rules or policies on emissions or have established ambient limits for specific pollutants. The number of regulated pollutants, as well as the applicable ambient limits, varies among states.

3.2.2 Existing Conditions

Given the nationwide scope of the PSIC Grant Program, it is not possible to describe in detail the entire affected environment for air quality. Impacts to air quality from specific projects would need to be addressed in site-specific NEPA documentation for PSIC-funded projects, where necessary. Multiple statutes regulating air quality may apply to a particular PSIC-funded project. A discussion follows of how air quality issues may impact siting of these projects and what requirements will need to be met to comply with existing Federal legislation.

Federal actions occurring in NAAQS nonattainment and maintenance areas will require a conformity determination when the total direct and indirect emissions generated by the action would equal or exceed the rates shown in Table 3-3. Therefore, whenever a PSIC-funded project is proposed for a nonattainment or maintenance area, a conformity determination must be made.

EPA has established the control technologies that must be used to control hazardous air pollutants and is working with State, local, and tribal governments to reduce the release of more than 180 substances. These substances can be byproducts of industrial or chemical processing, manufacturing, and other activities and are known to be hazardous to human health. PSIC-funded grant projects that emit Federal- or State-regulated hazardous air pollutants could be required to install the required control technology.

At the State and county levels, air quality is managed through numerous AQMDs. Each AQMD is responsible for controlling air pollution within the district to meet all State and Federal air quality standards. Using regional air quality data, each AQMD adopts its own statutes to deal with the air quality problems associated with that region, including setting emission limits for stationary sources such as factories and power plants. In addition, each district develops its own clean air plan and enforces local pollution control laws. Air quality may also be regulated at the municipal level, particularly in large metropolitan areas.

AQMDs may need to permit any new potential source of emissions through the New Source Review (NSR) permitting process statues. For example, even temporary sources such as construction activities, including building a road or preparing land to erect a tower, may require a permit, depending on the district and its air quality. This is because the activity may increase PM_{10} through ground disturbance. In most cases, a permit may not be required for temporary, small-scale construction measures. However, the AQMD associated with the project must be contacted to determine regulation applicability, regardless of project scale.

3.3 GEOLOGY AND SOILS

3.3.1 Definition of Resource

Geological resources are described as the geology, soils, and topography that characterize an area. The geology of an area refers specifically to the surface and near-surface materials of the earth and to how those materials were formed. These resources are typically described in terms of regional or local geology, including mineral resources, earth materials, soil resources, and topography.

Descriptions of these resource areas include bedrock or sediment type and structure, unique geologic features, depositional or erosional environment, and age or history. Mineral resources include usable geological materials that have some economic or academic value. Soil resources

include the unconsolidated, terrestrial materials overlying the bedrock or parent material and are typically described by their complex type, slope, and physical characteristics. Topography consists of the geomorphic characteristics of the land or sea floor surface, including the change in vertical elevation of the earth's surface across a given area, the relationship with adjacent land features, and geographic location (USCG, 2006).

Soil resources also include prime and unique farmlands, which are protected under the Farmland Protection Policy Act of 1981 (FPPA) (P.L. 97–98, 7 U.S.C. §4201). The FPPA applies to prime and unique farmlands and those that are of State and local importance.

"Prime farmland" is defined as land that has the best combination of physical and chemical characteristics for successfully producing crops. "Unique" farmland is defined as land that is used for the production of certain high-value crops, such as citrus, tree nuts, olives, and fruits. The Act requires Federal agencies to examine the potentially adverse effects to these resources before approving any action that would irreversibly convert farmlands to nonfarm uses. This examination is done in consultation with the Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA), which will use a land evaluation and site assessment (LESA) system to complete a Farmland Conversion Impact Rating Form.

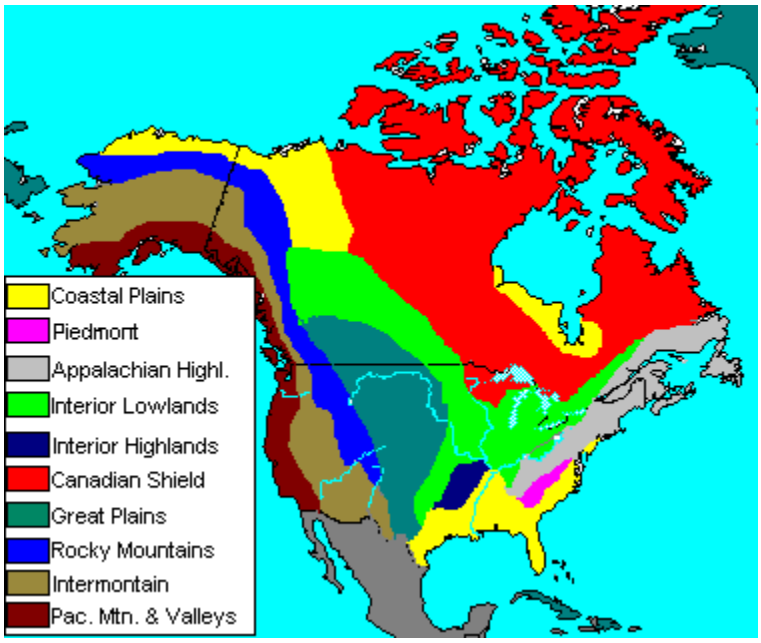
3.3.2 Existing Conditions

Geology and soils are inherently site-specific resources, and as such, existing conditions cannot reasonably be described on a national scale in this document. Site-specific conditions may be discussed in project-specific NEPA documentation, if required. However, it is possible to describe the geologic makeup of the States, Territories, and District of Columbia, all of which are eligible for PSIC-funded grants, in general terms with a discussion of physiographic divisions, as established by the U.S. Geological Survey (USGS).

Physiographic divisions are broad-scale regions established by common terrain texture, rock type, and geologic structure and history. Geologic, topographic, and soil characteristics may impose limitations on potential uses for a particular site. Areas characterized by seismic activity, structural instability, excessive erodibility, steep slopes, or the presence of prime or unique farmlands may completely preclude the implementation of a project at a particular site, require the use of certain engineering technology, or require consultation with State or Federal agencies.

The eight major physiographic regions in North America are the Canadian Shield, the Coastal Plain, the Appalachian Highlands, the Interior Plains, the Interior Highlands, the Rocky Mountain System, the Intermontain Plateaus, and the Pacific Mountain System (USGS, 2003; Healy, 2008). Each region is subdivided into more narrowly defined provinces; however, the provinces are not discussed in significant detail in this document. Figure 3-4 shows the geographic distribution of each physiographic region.

Figure 3-4. Physiographic Regions of North America



Source: Healy, 2008[6]

Canadian Shield

The Laurentian Highlands of the Canadian Shield dip down into Wisconsin and Minnesota in the Great Lakes region of the United States. The Canadian Shield is primarily composed of hard metamorphic rock, created approximately 4 billion years ago in the Precambrian period, and includes regions rich in mineral deposits. Successive periods of glacial expansion and retreat removed most of the sedimentary material that may have covered the area at one time. The area is characterized by low topographic relief and has been a source of iron, copper, and other important mineral resources (USGS, 2003; Healy, 2008). The area also contains prime and unique farmlands (USDA, 2000).

Coastal Plain

The Coastal Plain includes the Continental Shelf and the Gulf and Atlantic Coast plains stretching from New Jersey to Texas and across Canada and Alaska. The Coastal Plain is geologically one of the youngest regions of North America. This region was slowly built up as the Rocky Mountains began to rise 70 million years ago as the result of sediment buildup washed out from the Appalachian Highlands and the Interior Plains. The area is characterized by a very gentle topography and a transition zone between land and sea that often has marshes, lagoons, swamps, sand bars, and reefs, with no true coastline. Deposits of coastal marine life over millions of years form the basis for rich fossil fuel reserves in the region. The Coastal Plains contain prime and unique farmlands (USGS, 2003; Healy, 2008; USDA, 2000).

Appalachian Highlands

The Appalachian Mountain Range extends 900 miles from New York to Alabama. This area, which includes the Piedmont province, is composed of layers of intensely folded sedimentary rock created when North America first collided with Europe and Africa more than 500 million

[6] In this figure, the Piedmont province of the Appalachian Highlands Region and the Great Plains province of the Interior Lowlands are represented as separate regions, although they are not discussed separately in the accompanying text of this document.

years ago during the Paleozoic Era. Once the height of the present-day Rocky Mountains, the sedimentary rock of the Appalachian Highlands has eroded considerably, with most of the peaks now less than 5,000 feet in elevation. The region is characterized by prime and unique farmlands and is rich in mineral resources. Although deposits of copper and iron ore have been largely exhausted, coal deposits remain abundant (USGS, 2003; Healy, 2008; USDA, 2000).

Interior Lowlands

The Interior Lowlands, which include the Great Plains and are sometimes referred to as Interior Plains, were formed as a result of erosion from the Rocky Mountains during the Cenozoic Era and are underlain by sedimentary rock. The western part of this area contains excellent dinosaur fossils and also stores of fossil fuels (e.g., coal, oil, and natural gas). The region has relatively low topographic relief. Almost the entire region is drained by either the Mississippi or Missouri Rivers. The Interior Lowlands are heavily characterized by prime and unique farmlands (USGS, 2003; Healy, 2008; USDA, 2000).

Interior Highlands

The Interior Highlands are very similar in structure and history to the Appalachian Highlands and consist primarily of folded Paleozoic rock. The area includes the Ozark Plateau and the Ouachita Mountains and extends from eastern Oklahoma, west and northwest Arkansas, southern Missouri, and the southeast corner of Kansas. This area is characterized by dramatic topographic relief in the mountainous regions of the Ozarks and Ouachita Mountains, with sparse prime and unique farmlands (USGS 2003; Healy, 2008; USDA, 2000).

The Rocky Mountain System

The Rocky Mountain System extends from New Mexico up through Canada and west into Alaska. The Rocky Mountains were formed in the Laramide orogeny of the Cenozoic Period, approximately 40 million to 70 million years ago. The Rocky Mountains are a mix of sedimentary, igneous, and metamorphic rock. The highest peak rises to 14,000 feet. There are sparse prime and unique farmlands in this region (USGS, 2003; Healy, 2008; USDA, 2000).

Intermontain Plateaus

West of the Rockies are the Intermontain Plateaus, which were formed by the same basic processes that formed the Rocky Mountains. However, the significant differences in elevation may be attributed to faulting and intense recent erosion and down-cutting by rivers. The two main plateaus that make up the region are the Colorado Plateau (covering portions of Colorado, Utah, Arizona, and New Mexico) and the Columbia Plateau (covering eastern Washington and parts of Oregon and Idaho). The Colorado Plateau is composed primarily of relatively flat sedimentary rock that was uplifted during tectonic events, whereas the Columbia Plateau is the result of significant volcanic activity. Both areas have been significantly shaped by their respective river systems, the Colorado River, which formed the Grand Canyon, and the Columbia River. There are sparse prime and unique farmlands in this region (USGS, 2003; Healy, 2008; USDA, 2000).

Pacific Mountain System

As with the Rocky Mountain System, the Pacific Mountain System is very young relative to the eastern part of the continental United States. This diverse region runs from southern California up through Alaska. The Pacific Mountain System is a tectonically active region, home to the last remaining active volcanoes in North America and the highest mountain on the continent, Mount McKinley in Alaska. It is characterized primarily by igneous rocks, granite in particular, deposited as the result of volcanic activity. There are sparse prime and unique farmlands within this region (USGS, 2003; Healy, 2008; USDA, 2000).

There are several States and Territories that do not fall into the above-mentioned physiographic regions. The Hawaiian Islands are volcanic islands in the Pacific Ocean, created by hot-spot activity below the Earth's surface. Although most of the volcanoes are extinct, recent activity continues at several volcanoes on the big island of Hawaii (Lew, 2004). There are some prime farmlands in the Hawaiian Islands (USDA, 2000).

Three U.S. Territories—American Samoa, the Northern Mariana Islands, and Guam—are also volcanic islands in the Pacific Ocean and susceptible to seismic activity. Volcanic rock forms the geologic foundation of the islands, with sedimentary rock overlaying some portions. There are no prime farmlands on these islands (USDA, 2000).

The U.S. Virgin Islands and Puerto Rico are in the Caribbean Sea and of volcanic origin. Geologically, they are characterized by igneous rock overlaid with sedimentary rock deposited more recently. There are some prime farmlands on these islands (USDA, 2000).

Among all regions, soil erosion and sedimentation, because of increased runoff from construction sites and impervious surfaces, have compromised the integrity of geological and soil resources and to water resources. There are three main types of soil erosion: water erosion, wind erosion, and tillage erosion. The primary type of erosion likely to be seen as a result of PSIC-funded projects would be water erosion.

3.4 WATER RESOURCES

3.4.1 Definition of Resource

Water resources are streams, lakes, rivers, and other aquatic habitats in an area and include surface water, groundwater, wetlands, floodplains, coastal resources, and wild and scenic rivers. Water resources—such as lakes, rivers, streams, canals, and drainage ditches—make up the surface hydrology of a given watershed. The term "waters of the United States" applies only to surface waters—including rivers, lakes, estuaries, coastal waters, and wetlands—used for commerce, recreation, industry, sources of fishing, and other purposes.

Federal statutes, executive orders (EO), State statutes, and State agency regulations and directives protect water quality and the beneficial uses of water resources. EO 11988 (Floodplain Management) and EO 11990 (Protection of Wetlands) mandate the control of activities that indirectly influence water quality.

The Clean Water Act (CWA), as amended, is the primary Federal law in the United States regulating water pollution (P.L. 92–500, 33 U.S.C. §1251). The CWA regulates water quality of all discharges into "waters of the United States." Both wetlands and "dry washes" (channels that carry intermittent or seasonal flow) are considered "waters of the United States." Administered by EPA, the CWA protects and restores water quality using both water quality standards and technology-based effluent limitations. The EPA publishes surface water quality standards and toxic pollutant criteria at 40 Code of Federal Regulations (CFR) Part 131. The CWA also established the National Pollution Discharge Elimination System (NPDES) permitting program (Section 402) to regulate and enforce discharges into waters of the United States. The NPDES permit program focuses on point-source outfalls associated with industrial wastewater and municipal sewage discharges. Congress has delegated to many States the responsibility to protect and manage water quality within their legal boundaries by establishing water quality standards and identifying waters not meeting these standards. States also manage the NPDES system. This responsibility is delegated through an application process defined by the CWA, which includes a public review, comment period, and public hearing. The EPA renders a decision within 90 days of receipt of the application and may delegate full or partial responsibility for the NPDES program to the State or Territory. If the EPA does not approve the application, then the agency remains the permitting authority. Figure 3-5 shows the status of State NPDES

programs. Water quality standards are the foundation of the water quality–based control program mandated by the CWA.

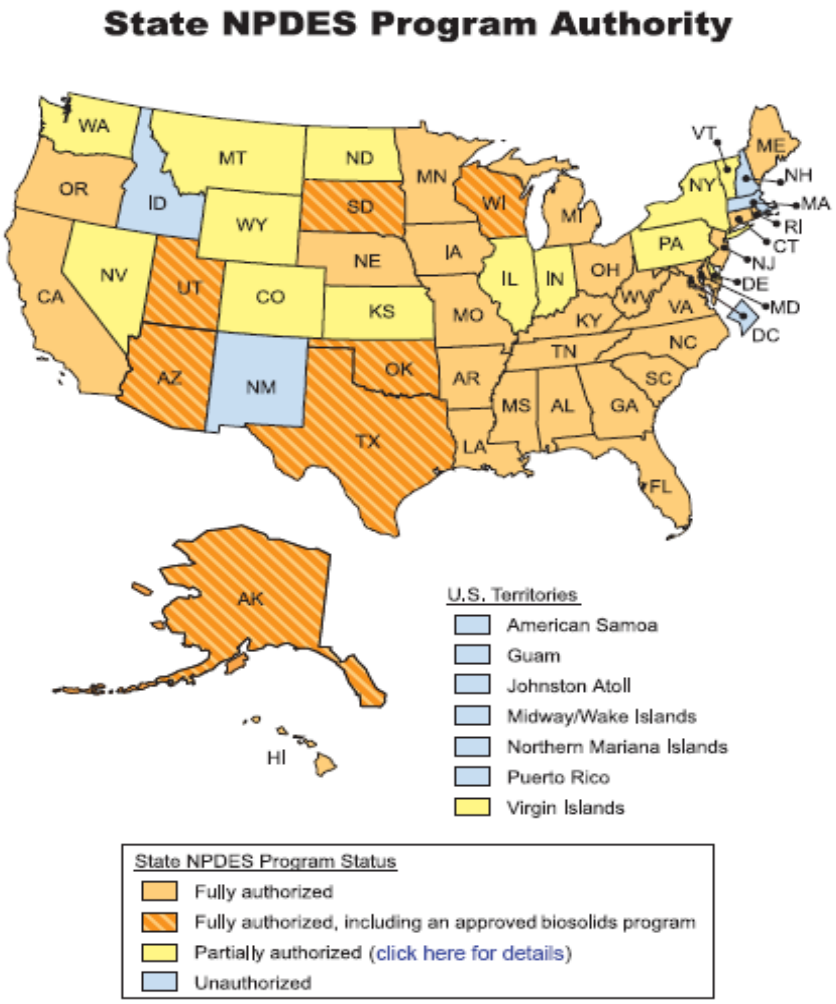
The CWA also requires Federal agencies to accommodate concerns for the potential impacts from Federal projects with State nonpoint source pollution control programs. Many States have adopted equivalent or more stringent statutes for nonpoint sources than those found in the Federal regulations, which are enforced by State Water Resources Control Boards (SWRCB) and Regional Water Quality Control Boards (RWQCB).

Section 404 of the CWA provides for the protection of the nation's waters and wetlands by establishing a program regulating the discharge of dredge and fill material within waters of the United States, including wetlands, and requiring a permit for such activities. The U.S. Army Corps of Engineers (USACE), EPA, and U.S. Fish and Wildlife Service (FWS) jointly administer the wetlands program. The USACE administers the day-to-day program, including authorizing permits to place dredge and fill material in waters of the United States and making jurisdictional determinations of waters of the United States, including wetlands. USACE permits are required for all activities resulting in the discharge of dredged or fill material to U.S. waters, including wetlands. Section 401 of the CWA provides authority for States to require that a water quality certification be obtained before issuance of a Section 404 permit. Additional protection to surface water and aquatic biological resources from impacts associated with stormwater runoff is provided by Section 402, which requires a NPDES permit for various land development activities.

Facility construction or modifications may require one or more of the following permits:

NPDES General Permit. This permit may be required for a constructed or relocated facility if the facility discharges any waters other than to the sanitary sewer.
NPDES Stormwater Construction Permit. This permit is required for any construction activity that will affect 1 acre or more, unless local restrictions impose a smaller acreage threshold. Specifically excluded is construction activity that includes "routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility."
NPDES Stormwater Industrial Permit. Stormwater permits are currently required for most industrial properties. If modifications are made or if an industrial facility is relocated the permit must be modified to reflect these changes.

Figure 3-5. State NPDES Program Authority



Source: EPA, 2003.

SWRCBs and RWQCBs work together to protect State water resources and are responsible for establishing water quality standards and objectives that protect the beneficial uses of different waters. SWRCBs are solely responsible for allocating surface water rights, set policy on a Statewide level, support RWQCB efforts, and review any petitions filed to contest RWQCB actions. RWQCBs are responsible for protecting the surface, ground, and coastal waters from pollution originating from point sources (e.g., sewage treatment plant discharge) and nonpoint sources (e.g., runoff from urban paved areas).

Some State departments of fish and game regulate alterations made to natural waterways. Modifications or new construction of facilities that may impact the volume or quality of water entering a natural waterway (e.g., culvert discharging into a “dry wash”) may be required to obtain a Streambed Alteration Permit.

Counties and cities have developed general plans that include county- or city-specific descriptions of surface and groundwater resources. Some urbanized counties and municipalities have county- or area-wide stormwater permits that offer guidelines and restrictions to new development that may impact modifications or construction of new facilities. Some municipalities have also adopted Watershed Management Plans that may regulate or restrict the modification

or construction of facilities that discharge into waters within their plan area. Frequently, local public health departments regulate wells and septic systems.

The Coastal Zone Management Act of 1972 (CZMA) (16 U.S.C. §1451) provides States with the authority to determine whether activities of governmental agencies are consistent with Federally approved State Coastal Zone Management Plans (CZMP). The intent of the CZMA is to prevent any additional loss of living marine resources, wildlife, and nutrient-enriched areas; alterations in ecological systems; and decreases in undeveloped areas available for public use. Applicability of the CZMA to land use is discussed in Section 3.8, Land Use Planning.

The Safe Drinking Water Act (SDWA) provides for the protection of public health by regulating the U.S. public drinking water supply (P.L. 93–23, 42 U.S.C. §300f). The SDWA aims to protect drinking water and its sources (e.g., rivers, lakes, reservoirs, springs, and groundwater wells) and authorizes EPA to establish national health–based standards for drinking water to protect against naturally occurring and man-made contaminants. Every public water system in the United States is protected by the SDWA. Under Section 1424(e) the SDWA prohibits Federal agencies from funding actions that would contaminate a sole-source aquifer[7] or its recharge area. Any Federally funded project (including those that are partially Federally funded) with the potential to contaminate a designated sole-source aquifer is subject to review by EPA. EPA's regulations implementing the SDWA requirements are found in 40 CFR 141–149. Federal SDWA groundwater protection programs are generally implemented at the State level.

EO 11988 (Floodplain Management) requires Federal agencies to determine whether a Proposed Action would occur within a floodplain and to take action to minimize occupancy and modification of floodplains. A floodplain is defined as the lowlands and flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands. At a minimum, areas designated as floodplains are susceptible to 100-year floods.[8] EO 11988 requires that Federal agencies proposing to site a project in the 100-year floodplain must consider alternatives to avoid adverse effects and incompatible development in the floodplain. If no practicable alternatives exist to siting a project in the floodplain, the project must be designed to minimize potential harm to, or within, the floodplain. Furthermore, a notice must be publicly circulated explaining the project and the reasons for its siting in the floodplain.

In circumstances known as "critical actions," the regulated flood-prone area is defined by the 500-year floodplain.[9] Critical actions are defined as those activities for which even a slight chance of flooding would be too great, because such flooding might result in loss of life, injury to persons, or damage to property. Examples of facilities engaged in critical actions include principal utility lines, emergency operations centers, hospitals, and nursing homes.

FEMA administers the National Flood Insurance Program (NFIP) and produces Flood Insurance Rate Maps (FIRM) depicting the spatial layout of areas that may be potentially affected by flood events. The NFIP and its implementing regulations (44 CFR Parts 59–77) stipulate minimum standards for floodplain development in communities that participate in the program. Local governments incorporate these standards, or more stringent standards, into their floodplain ordinances. In addition to showing the locations of the 100-year and 500-year floodplains, many FIRMs show the base flood elevation. FIRMs delineate floodplains with other descriptors, the most important of which are the floodway and the 100-year coastal, high hazard floodplain. The floodway is the channel of a river or other watercourse and adjacent land areas that are

[7] A sole-source aquifer is defined as supplying at least 50 percent of the drinking water consumed in an area overlying the aquifer.

[8] Defined as a flood having a 1 percent chance of occurring in any given year. Zones A and V of FIRMs encompass the area of the 100-year floodplain.

[9] Defining a flood having a 0.2 percent chance of occurring in any given year.

required to remain free from development to discharge the base flood without cumulatively increasing the water-surface elevation. Because the coastal floodplain is subject to storm surge floodwaters, this region has more stringent statutes for development than the normal 100-year floodplain.

3.4.2 Existing Conditions

Water resources are inherently site-specific resources, and as such, existing conditions cannot reasonably be described on a national scale in this document. Site-specific conditions may be discussed in project-specific NEPA documentation, where necessary. However, it is possible to describe, in general terms, water resources such as surface water, groundwater, floodplains, and wetlands.

Surface water and groundwater resources are often hydrologically linked and have the potential to affect each other. For example, pollution in the surface water may seep into underlying groundwater, or contaminated groundwater may recharge surface water supplies. Definition of a reasonable environmental setting for potential activities as they relate to surface water and groundwater quality includes the consideration of water quality data, relevant environmental documents, and regulatory standards. Environmental documentation can include a range of activities and existing facilities.

Chemical water quality describes the general chemical character of surface water and groundwater. The attributes of chemical water quality include all of the inorganic and organic chemicals found in natural waters and for which humans, other animals, and vegetation have moderate to high tolerance. Changes in chemical quality can make water unfit for drinking water purposes while still fit for other purposes. Often, changes in chemical quality are gradual and can go unnoticed until tastes or odors develop.

Physical water quality describes the attributes of odor, taste, and color of surface water and groundwater that reflect their desirability for use. Changes in these attributes can make water undesirable for human consumption.

Toxics are heavy metals, carcinogens, and other inorganic and organic chemicals that, even in low concentrations, might be harmful to human or animal life. Designing procedures and processes to prevent contamination of water supplies avoids the potential addition of these harmful materials. Chemical or physical changes and the presence of toxins in the water might also impact the quality of the surface water for recreational purposes.

Handling of materials that might adversely affect surface water or groundwater supplies requires adherence to procedures designed to avoid contamination. PSIC project activities with the potential for uncontrolled release of these materials could include fueling of construction equipment and backup generators.

Information about water quality across the United States is available in the USGS National Water Information System, a comprehensive nationwide water quantity and quality database for both surface water and groundwater with approximately 1.5 million sites in all 50 States, the District of Columbia, and Puerto Rico. Data for many locations can be retrieved through the USGS website. EPA also maintains the STOrage and RETrieval System for Water and Biological Monitoring Data (STORET), a system actively populated with raw biological, chemical, and physical data on surface and groundwater collected by Federal, State, and local agencies and Native American Tribes, volunteer groups, academics, and others.

Surface Water

Surface water is generally defined as waters in a river, lake, stream, or estuary. Surface water is naturally replenished by precipitation and lost through natural processes such as discharge to

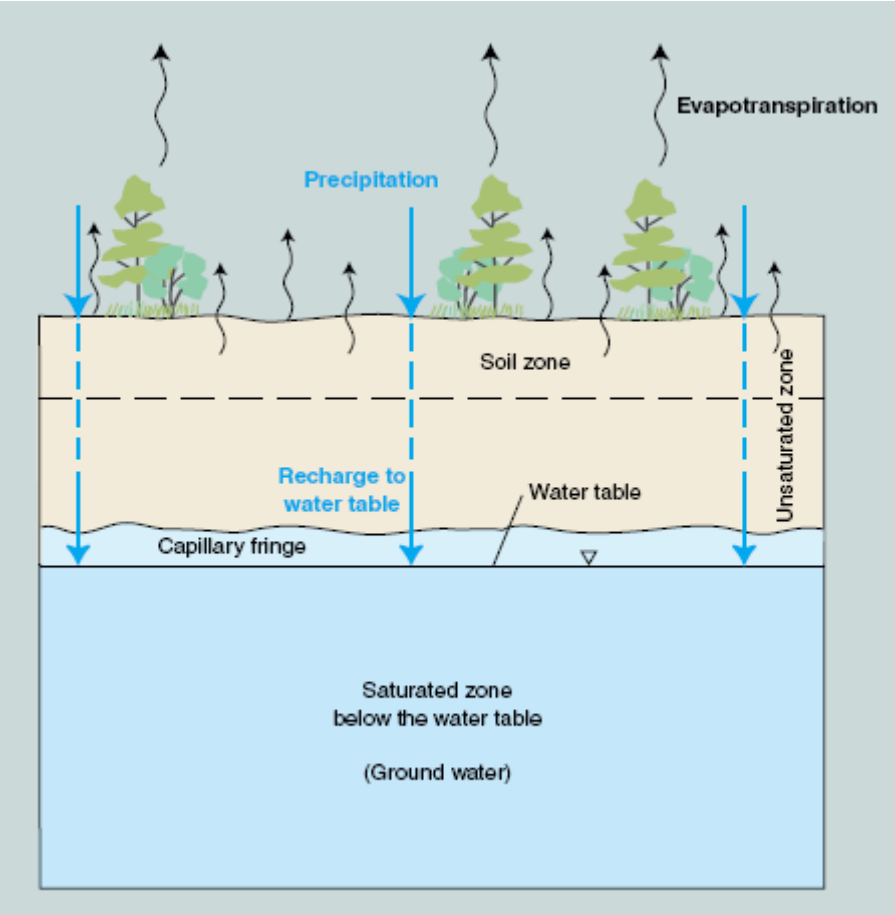
oceans, evaporation, and subsurface seepage. The total quantity of water in any surface water system and proportions of water lost are dependent on precipitation in its watershed, storage capacity. soil permeability, runoff characteristics of land in the watershed, timing of the precipitation, and evaporation rates.

Human activities can have a large impact on the total quantity of water in the system. Humans construct reservoirs or drain water bodies to increase storage capacity of the surface water system. Impervious surfaces (e.g., paved roads, parking lots, and buildings) and channelization of streams increase runoff quantities and velocities. An important consideration of surface water is the total quantity of water available at a given time. Human water use varies on the basis of one's needs. Over the long term, the average precipitation rate within a watershed is directly linked to the total amount of surface water available and is therefore the upper bound for average consumption from any source of natural surface water from that watershed. Natural surface water supplies can be increased by importing surface water from a nearby watershed or aquifer using canals, pumps, or pipelines.

Groundwater

Groundwater describes any water that is located beneath the ground surface in soil pore spaces and fractures in subsurface rock. This water is stored in an aquifer—which is defined as a porous substrate, typically an underground layer of permeable rock or unconsolidated material (e.g., sand, gravel, silt, or clay)—and may either flow naturally to the surface or be extracted using pumps or wells (Purdue, 2005). Figure 3-6 depicts the major features of a groundwater system.

Figure 3-6. Typical Groundwater System



Source: USGS, 1999.

Groundwater makes up approximately 20 percent of the world's water supply, and it is the primary source of water for up to 50 percent of the American population, primarily those in rural areas. It is primarily replenished by precipitation and surface flows from streams and rivers. Average daily water use in the United States is estimated at approximately 100 gallons per person per day, with approximately 60 percent of freshwater used for crop irrigation. In 2000, approximately 57.5 billion gallons of groundwater were used for crop irrigation daily (USGS, 2008a; Purdue, 2005).

Groundwater is primarily regulated under the SDWA through establishment of drinking water standards, source water protection programs, and regulation of underground injection control. Drinking water quality varies from place to place, depending on the condition of the source water from which it is drawn and the treatment it receives.

Floodplains and Wetlands

There is a significant overlap between floodplains and wetlands. Wetlands are usually part of the floodplain, but not all floodplains contain wetlands. Protection of both preserves the natural values for habitat for many species; natural (pollution) filtration; storm hazard reduction; erosion and sediment control; water supply; water quality, recharge, and discharge; fish, timber, food, and fiber resources; and recreational, scientific, and cultural uses.

Between European settlement in the early 1600s and 1980, over half of the original 221 million acres of wetlands in the conterminous[10] United States were lost as a result of man-made drainage, development, surface water management (redistribution), and erosion (Dahl and Allord, 1997). Federal conservation programs and initiatives such as State wetland mitigation banks and FEMA's Mitigation Grant Program are returning some floodplains to their natural state. PSIC projects should avoid floodplain and wetland locations.

3.5 BIOLOGICAL RESOURCES

3.5.1 Definition of Resource

Biological resources are animals, plants, and their habitats that are native to an area, including threatened or endangered species. In general, biological resources can include native and introduced plants that comprise the various habitats, animals present in such habitats, and natural areas that help support these plant and wildlife populations. Protected or sensitive biological resources include plant and animal species listed as threatened or endangered by FWS, National Marine Fisheries Service (NMFS), or a State. The following section describes categories of biological resources such as vegetation and associated habitats, wildlife, threatened and endangered species, and wetlands.

Many Federal and State laws, regulations, programs, and EOs protect biological resources. Proposed PSIC-funded activities must comply with the criteria and requirements of regulations applicable to the potentially affected biological resources. Federal laws pertinent to protecting biological resources are discussed below.

The Endangered Species Act (ESA) (16 U.S.C. §1531) requires Federal agencies to conserve endangered species by listing endangered and threatened species of plants and animals and designating the critical habitat for animal species. The ESA defines an endangered species as any species in danger of extinction throughout all or a significant area of its range and a threatened species as any species likely to become endangered in the near future. Under Section 7 of the ESA, Federal agencies, in consultation with FWS or NMFS, must ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species (i.e., a listed species) or to result in the destruction or adverse modification of critical habitat, defined as a specific geographic area that is essential for the conservation of a threatened or endangered species and that may require special management and protection (FWS, 2007). FWS and NMFS are responsible for compiling the lists of threatened and endangered species. If a Proposed Action may adversely affect a listed species or critical habitat, the Federal agency must prepare a Biological Assessment (BA) and initiate a formal consultation with FWS or NMFS. After reviewing the BA, FWS or NMFS prepares a Biological Opinion stating whether the Proposed Action is likely to jeopardize the continued existence of a listed species or cause the destruction or adverse modification of critical habitat. The purpose of the consultation process is to ensure avoidance and minimization of potential adverse impacts on a listed species or critical habitats. Formal consultation is not required if the Federal agency determines, and FWS or NMFS concurs in writing, that the Proposed Action is not likely to adversely affect listed species. In addition, the ESA prohibits all persons subject to U.S. jurisdiction, including Federal agencies, from, among other things, "taking" endangered or threatened species. The "taking" prohibition includes any harm or harassment and applies in the United States and on the high seas.

The Fish and Wildlife Conservation Act (16 U.S.C. §2901), also known as the Nongame Act, provides financial and technical assistance to States for the conservation, protection,

[10] Conterminous United States refers to the 48 contiguous States plus the District of Columbia, located on the North American continent south of the border with Canada, but excluding Alaska and Hawaii.

restoration, and propagation of nongame fish and wildlife. In the Act, Congress recognized that fish and wildlife are of ecological, educational, aesthetic, cultural, recreational, economic, and scientific value to the nation. The Nongame Act was designed to support State efforts to protect the fish and wildlife species that are neglected under the ESA, that is, protecting species before they become imperiled and are listed under the ESA. The Nongame Act reimburses States for a percentage of the costs of developing, revising, or implementing conservation plans. Federally sponsored activities are required to comply with the provisions of conservation plans and programs developed under the Nongame Act.

EO 11990 (Protection of Wetlands) requires Federal agencies to provide leadership and take action to minimize the destruction, loss, or degradation of wetland habitat and to preserve and enhance the natural and beneficial values of wetland habitats in carrying out the agency's responsibilities. Wetland habitats generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.

The Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801) is the primary law that regulates fishery resources and fishing activities in Federal waters. The goals of the Act include conservation and management of U.S. fishery resources, development of U.S. domestic fisheries, and phasing out of foreign fishing activities within the 200-mile fisheries conservation zone adjacent to the U.S. coastline. The Act also created eight Regional Fishery Management Councils charged with implementing the goals in coordination with the NMFS. The Act mandates the identification of Essential Fish Habitat (EFH), defined as those waters and substrate necessary for fish spawning, hatching, breeding, feeding, and growth to maturity for all managed species.

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §703) prohibits the taking of migratory and certain other birds, their eggs, nests, feathers, or young without an appropriate permit. The MBTA is the primary law that affirms or implements the nation’s commitment to four international conventions (with Canada, Japan, Mexico, and Russia) for the protection of a shared migratory bird resource. Each convention protects selected species of birds that are common to both countries (e.g., they occur in both countries at some point during their annual life cycle).

EO 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) strengthens the protection of migratory birds and their habitats by directing Federal agencies to take certain actions that implement the MBTA. Specifically, Federal agency actions that have, or are likely to have, a measurable negative effect on migratory bird populations require development and implementation of an Memorandum of Understanding (MOU) with FWS that promotes the conservation of migratory bird populations. The EO and MOUs are the regulatory basis for conservation actions or renewal of contracts, permits, delegations, or other third-party agreements associated with migratory birds. MOUs established under EO 13186 are published in the *Federal Register.*

FWS's Division of Migratory Bird Management established several initiatives in the past decade to research collisions of birds with communication towers. In 1999 FWS established the Communication Tower Working Group, composed of government, industry, and academic groups to study and determine tower construction approaches that prevent bird strikes. In addition, in 2000 FWS developed voluntary tower siting guidelines for use by the industry; see Appendix B for more information.

The National Wildlife Refuge System Improvement Act (P.L. 105–57) requires that the National Wildlife Refuge System be managed on a national basis to protect and conserve the nation’s wildlife resources. The Refuge System is a network of Federal lands composed of 500 parcels and thousands of waterfowl production areas across the country. Many of these wildlife refuges

are located near coastal shorelines and provide seasonal habitat for migratory birds. FWS requires a Special Use Permit for activities that can affect the biological resources in a refuge.

In addition to the Federal laws and EOs protecting biological resources, State regulations applicable to biological resources (e.g., State-listed species or habitats) will be addressed during site-specific analysis of the PSIC-funded projects, where necessary.

3.5.2 Existing Conditions

Given the broad geographic scope of the PSIC Grant Program, it is not possible to describe in detail the entire affected environment for biological resources. If necessary, site-specific conditions may be described in site-specific NEPA analysis. A discussion follows of general biological resources characterized as vegetation and wildlife, birds, threatened and endangered species, and wetlands.

Vegetation and Wildlife

Vegetation would vary by location. As described in Section 3.3, *Geology and Soils*, a variety of plant communities are associated with the major physiographic regions of the United States. Vegetation can be characterized as tundra, forest (coniferous and broadleaf/mixed), grasslands and savannas, and desert (Figure 3-7). The potential for an area to provide and be used as wildlife habitat is based on several factors, including topography, vegetative cover and type, water availability, aerial extent, connectedness, and interferences attributable to human activity. General vegetation communities and potential wildlife are described below.

Tundra

Vegetation in areas characterized as tundra is primarily controlled by low temperatures and short growing seasons. The Arctic tundra region is frozen land for much of the year, with subsurface layers of permafrost. Typical vegetation is composed of dwarf shrubs, sedges and grasses, mosses, and lichens with scattered trees in some areas. During the summer, the top layer of permafrost melts, resulting in highly saturated surface soils, which support large regions of lake, bog, and stream environments during the warmer months. Mammal species include one of North America's largest herds of Porcupine caribou, which breeds here. Other mammal species include polar and grizzly bears, Dall sheep, caribou, snowshoe hares, red foxes, and brown and collared lemmings. Bird species commonly found are Smith's longspurs, Bluethroats, snowy owls, gyrfalcons and Peregrine falcons, and rough-legged hawks (WWF, 2006a).

Figure 3-7. General Vegetation Communities of the United States

Source: Pidwirny, 2007.

Temperate Coniferous and Conifer Forests

Coniferous forests are found in climates with warm summers and cold winters with adequate rainfall to sustain a forest. Predominate species are evergreen conifers, while some coniferous forests exhibit a mix of conifers and broadleaf evergreen trees (where green foliage is persistent year round), and sometimes broadleaf deciduous trees. Tree species inhabiting coniferous evergreen forests that make up the overstory include cedar, cypress, Douglas fir, fir, juniper, pine, spruce, redwood, and yew. Structurally, coniferous forests consist of two layers: an overstory and understory. The understory in a coniferous forest can contain a wide variety of

herbaceous and shrub species. An intermediate layer of shrubs may also be present (WWF, 2006b). Wildlife present in coniferous forests have special adaptations for surviving cold winters. Some animals, such as ermines and snowshoe hares, use camouflage to blend in with the environment and hide from predators. Many birds are migratory and return to the forest to feed on insects and nest during the summer months. Larger mammals (e.g., mule deer, elk, and bighorn sheep) migrate to warmer temperatures and to find food. Other animals (e.g., bears, marmots, ground squirrels, and other small mammals) that may be present forage on large amounts of food before hibernation (Virginia Tech, 2008).

Temperate Broadleaf and Mixed Forests

The temperate broadleaf and mixed forests biome (often called temperate deciduous forests) is composed of trees that lose their leaves annually, such as oak, maple, beech, and elm. Vegetation in deciduous forests is well adapted to survive in relatively wet climates and four distinct seasons (winter, spring, summer, and autumn). Deciduous trees often have leaves that absorb water and sunlight and provide shade and nutrients to understory habitats. By shedding their leaves in the fall and winter, trees of deciduous forests avoid carrying the heavy weight of snow that would otherwise fall on them. Many deciduous plants flower during the winter when they are leafless to increase the effectiveness of pollination. A wide variety of mammals, birds, insects, and reptiles can be found in a deciduous forest. Common mammal species found in a deciduous forest include bears, raccoons, squirrels, skunks, wood mice, and deer. Across large regions of the deciduous forest environment, populations of previously common top predators such as bobcats, mountain lions, timber wolves, and coyotes have been virtually eliminated by hunting and habitat loss as a result of development (Virginia Tech, 2008).

Temperate Grasslands, Savannas, and Shrublands

Grasslands and savannas (also called prairie) are areas of land with low topographic relief experiencing a moderate or well-balanced supply of moisture that supports grasses and herbs, with a minimal presence of trees. Prairie grasses have deep, interconnected root systems that firmly hold soil in place and prevent runoff or soil erosion. These deep roots reach water in even the driest conditions. Fire is a controlling factor of prairie ecology. Natural and human-induced fires rejuvenate herbaceous species, trees, and brush. A number of large grazing mammals (antelopes and bison) and associated predators, in addition to burrowing mammals, numerous bird species, and of course, a diversity of insects inhabit prairies. Common species include the badger, black-footed ferret, bison, burrowing owl, deer, birds of prey, elk, gray wolf, squirrels, prairie dog, red fox, and skunk (WWF, 2006c).

Deserts and Xeric Shrublands

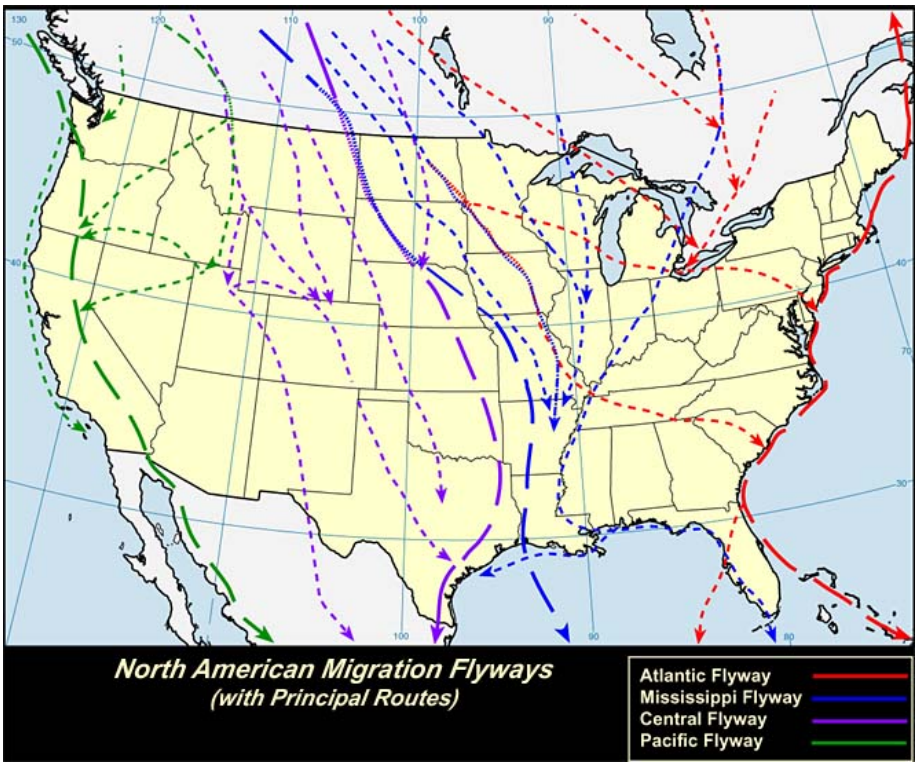
Regions that receive low precipitation are characterized as deserts and largely composed of sand and rocky surfaces with corresponding vegetation resistant to desiccation. Because of their minimal vegetative growth, deserts tend to exhibit a large diurnal and seasonal temperature range, with high daytime temperatures and low nighttime temperatures. Exposures of rocky terrain are common and reflect minimal soil development and sparseness of vegetation. Woody-stemmed shrubs and plants characterize vegetation that has evolved to minimize water loss for survival in the desert. Wildlife in the desert has also adapted to the lack of water and survival in the extreme temperatures with a shortage of food. Animal biodiversity is equally well adapted and quite diverse. Many desert animals are nocturnal; to avoid the high daytime temperatures, they burrow beneath the surface or hide in the shade during the day, emerging at night to eat. Commonly found desert animals include bighorn sheep, coyotes, desert tortoises, jackrabbits, and sidewinder snakes (WWF, 2006d).

Migratory Birds

The MBTA identifies and protects more than 800 species of migratory birds. In the western hemisphere, most migratory birds fly south in the autumn to winter habitats in the southeastern United States or Mexico, Central and South America, and the Caribbean. These species return north in the spring, where young are produced and the cycle repeats.

In general, bird migration in the United States follows a north-south direction, concentrated along major topographic features such as mountain ridges, coastlines, and large rivers. While each species of bird might have its own route, many birds use the same general routes. Figure 3-8 illustrates the four primary migratory pathways in continental North America.

Figure 3-8. General Migratory Bird Flyways in Continental North America

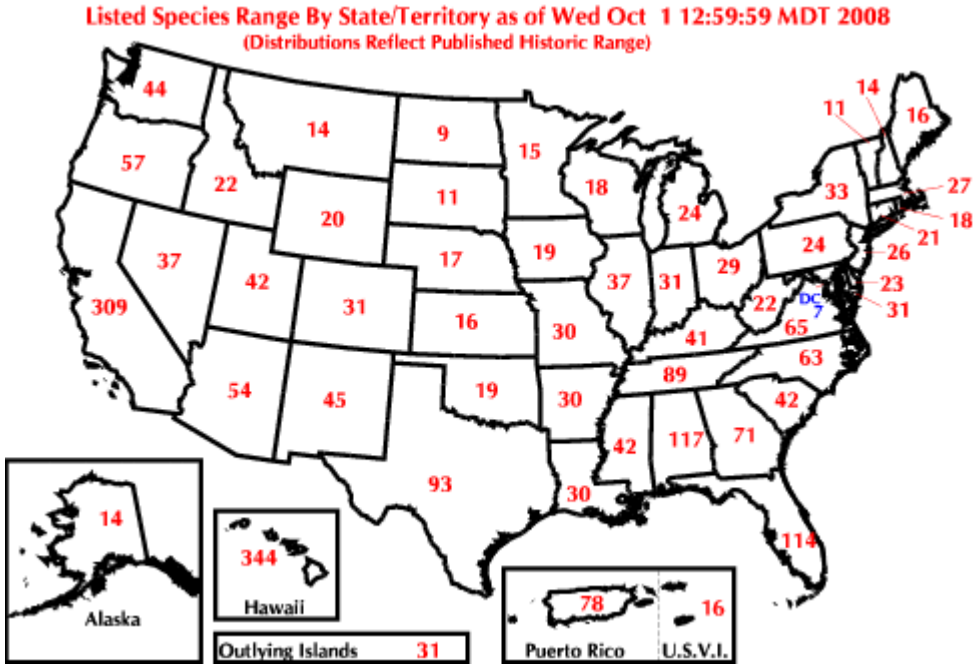


Source: USGS, 2008b.

Threatened and Endangered Species

Before a plant or animal species can receive protection, it must first be placed on the list of endangered and threatened species following a regulatory process delineated in Section 4 of the ESA. Generally, FWS manages land and freshwater species, while NMFS manages marine and anadromous species. FWS lists 377 vertebrates, 238 invertebrates, 713 flowering plants, and 31 nonflowering plants as threatened or endangered in the United States and its Territories (FWS, 2008). Figure 3-9 illustrates the current number of listed species for each State and Territory. NMFS lists 66 species, or populations of species, within its jurisdiction as threatened or endangered (NMFS, 2008). Critical habitat has been designated by FWS for 526 of the listed species (FWS, 2008). Individual States and Territories also provide protection to species listed as threatened or endangered within their jurisdictions. State and Territorially listed species typically include the Federally listed species known to occur in the region and additional species considered to be sensitive within their jurisdiction.

Figure 3-9. Listed Threatened and Endangered Species for U.S. States and Territories



Source: FWS, 2008.

Wetlands

The USACE Wetlands Delineation Manual prescribes procedures for determining the presence of wetlands. The USACE defines wetlands as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (USACE, 1987). Typically, for a wetland to be considered a water of the United States, it must satisfy three criteria: (1) Greater than 50 percent of the plant species in the community must be hydric (water-loving) species; (2) Soils must be hydric; and (3) Wetland hydrology (e.g., standing water, drift lines, evidence of standing or flowing water) must be present. If one or more of these criteria are absent, the wetland is not considered a water of the United States (USACE, 1987). Functions attributed to wetlands include water quality improvement, wildlife habitat, groundwater recharge and discharge, unique flora and fauna (e.g., biodiversity and habitat), pollution mitigation, nutrient cycling, stormwater attenuation and storage, sediment detention, and erosion protection.

Multiple Federal entities, such as the FWS, USDA, and NRCS, produce wetlands map inventories in support of their Congressional mandate. The FWS has the primary responsibility for the mapping and inventory of all the wetlands of the United States through the National Wetlands Inventory. Wetland maps produced by other agencies can serve different purposes and are generally incorporated with maps developed by the FWS.

3.6 HISTORIC AND CULTURAL RESOURCES

3.6.1 Definition of Resource

Historic and cultural resources are sites, structures, buildings, districts, or objects, associated with important historic events or people, demonstrating design or construction associated with a historically significant movement, or with the potential to yield historic or prehistoric data, that are considered important to a culture, a subculture, or a community for scientific, traditional,

religious, or any other reason (NPS, 2008). Typically, historic and cultural resources are subdivided into the following categories:

- **Archaeological resources.** This includes prehistoric or historic sites where human activity has left physical evidence of that activity but few aboveground structures remain standing.
- **Architectural resources.** This includes buildings or other structures or groups of structures that are of historic or aesthetic significance.
- **Native resources.** These include resources of traditional, cultural, or religious significance to a Native American Tribe, Native Hawaiian, or Native Alaskan organization.

Traditional cultural properties (TCP), as defined in National Register Bulletin 38 (NPS, 1998), include archaeological resources, structures, neighborhoods, prominent topographic features, habitats, or areas where particular plants, animals, or minerals exist that any cultural group considers to be essential for the preservation of traditional cultural practices.

There are multiple Federal regulations that protect historic and cultural resources. The National Historic Preservation Act of 1966 (NHPA) (P.L. 89–665, 16 U.S.C. §470) directs the Federal Government to consider the effects of its actions on historic and cultural resources under Section 106 through a four-step compliance process. It is noteworthy, however, that the law does not necessarily mandate preservation but does mandate a carefully considered decision making process. The four steps of the Section 106 compliance process are the following:

1. **Establish whether the Proposed Action constitutes an undertaking.** Per 36 CFR 800.16, an undertaking is an action funded in whole or in part under the direct or indirect jurisdiction of a Federal agency. If the Proposed Action is an undertaking, the appropriate State Historic Preservation Office (SHPO) or Tribal Historic Preservation Office (THPO) and other consulting parties (stakeholders) are identified.

2. **Identify National Register-listed or eligible properties.** Eligible historic properties in the geographic area of the Proposed Action are identified and evaluated for significance, including properties potentially eligible or listed with the National Register of Historic Places (NRHP) that may be affected by the Proposed Action.

3. **Assess affects of Proposed Action on eligible historic properties.** If the assessment determines no historic properties or no adverse effect to eligible historic properties, the SHPO/THPO and other consulting parties are informed, and the compliance process stops at this step. If the assessment determines actual or potential adverse effect to eligible historic properties, the SHPO/THPO and other consulting parties are notified through a letter and supporting documentation.

4. **Resolve adverse effects to eligible historic properties through consultation with the SHPO/THPO and Advisory Council on Historic Preservation (ACHP), as necessary.**

Section 110 of the NHPA establishes the historic preservation responsibilities assigned to Federal agencies and requires that each agency integrate a historic preservation policy into its ongoing programs. It further states that Federal agencies are responsible for considering projects and programs that advance NHPA goals and that preservation work may be classified as allowable project costs. In addition, NHPA directs the Federal Government to assist State and local historic preservation programs in carrying out their mission. The NHPA defines historic properties as sites, structures, buildings, districts, or objects that are at least 50 years old, with some younger exceptions that are significant within their historical context, retain their historical integrity, and are able to convey their significance. Any PSIC-funded project that would involve construction, ground disturbance, or modification of the exterior of a historic property, or a

property in the viewshed of a historic property or district, may require consultation with the relevant SHPO or THPO.

In general, actions that have the potential to affect historic properties are those that involve modifications to land or buildings and structures, including construction, grading, excavation, maintenance, rehabilitation, and renovation, or the sale or lease of a historic property. Similarly, actions that have the potential to impact historic and cultural resources include those that affect buildings, sites, structures, districts, and objects eligible for or included in the NRHP; cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (P.L. 101–601, 104 Stat. 3048); American Indian sacred sites for which access is protected under the American Indian Religious Freedom Act (AIRFA) of 1978 (P.L. 95–341, 92 Stat. 469); archaeological resources as defined by the Archaeological Resources Protection Act (ARPA) of 1979 (P. L. 96–95, 16 U.S.C. §470); and archaeological artifact collections and associated records as defined by 36 CFR Part 79.

3.6.2 Existing Conditions

Archaeological Resources

Archaeological resources are defined by the ARPA as any material remains of past human life or activities that are of archaeological interest. This definition can apply to pre-contact indigenous (Native American, Native Hawaiian, or Native Alaskan) activity; European exploration and settlement; or post-contact settlement, warfare, and land use. Resources include habitation sites (e.g., ephemeral camps, base camps, villages, palisaded villages, farmsteads); procurement sites (e.g., agricultural and aquaculture fields, bait cups, logging sites, and trading posts); manufacturing sites (e.g., kilns, mills, quarries); transportation sites (e.g., trail systems, landings, anchor holes); ceremonial sites (e.g., burial sites, shrines, petroglyphs, mounds, cemeteries); ruins of forts from the period of early European exploration and settlement; and battlefield sites and features associated with the Revolutionary and Civil Wars. Archaeological resources are present in a wide variety of habitats with surface features and may be potentially revealed or damaged by construction activities.

Nearly all archaeological resources are site-specific. Therefore, requirements for SHPO and THPO coordination and consultation must also be site-specific concerning protection and preservation of archaeological resources. Any PSIC-funded projects that would involve ground-disturbing activities (e.g., construction of communication towers and upgrades to emergency response centers) have the potential to impact archaeological resources.

Architectural Resources

Architectural resources include private residences, hotels, commercial buildings, canneries, shipyards, coastal fortifications, piers, ports, wharves, power plants, seawalls, jetties, bridges, locks and dams, lighthouses, historic districts (local, regional, or national), and National Historic Landmarks. Many of these types of resources are eligible for, or are listed on, the NRHP and State registers of historic places. These resources are protected by both Federal and State laws.

Nearly all architectural resources are site-specific. Therefore, requirements for SHPO and THPO coordination and consultation must also be site-specific concerning protection and preservation of architectural resources. Any PSIC-funded projects that would involve renovations to buildings or structures that are either historic or within the area of potential effects (APE) for other historic properties have the potential to impact architectural resources.

Traditional Cultural Properties

TCPs are defined as those resources associated with cultural practices or beliefs of a living community that are historically significant to the community and important to maintaining its

cultural identity, and are therefore of traditional, cultural, or religious significance (NPS, 1998). These resources are common throughout the country and are likely to be encountered in any area of long-term indigenous people habitation. As with other historic and cultural resources, TCPs are site-specific, and findings of potential for impact trigger THPO coordination and consultation. With respect to PSIC projects, THPO communication and coordination would probably be initiated through the FCC's Tower Construction Notification System (TCNS), which notifies Federally recognized Native American Tribes, Native Hawaiian, or Native Alaskan groups of proposed projects.

3.7 AESTHETIC AND VISUAL RESOURCES

3.7.1 Definition of Resource

Effects to aesthetic and visual resources deal broadly with the extent to which development contrasts with the existing environment, architecture, historic or cultural setting, or land use, and the determination of effects is a judgment that must be made by a qualified professional. Visual resources are the natural and man-made features that give an area its visual character. Visual resources generally refer to the urban environment, whereas aesthetic resources typically include impacts to natural and scenic areas.

Visual resources are inherently difficult to assess, because they involve subjectivity. Often communities, historical societies, and their corresponding jurisdictional agencies are the arbiters of visual effects resulting from the Proposed Action.

There are no Federal statutory or regulatory requirements for visual resources and aesthetics. State, regional, or local requirements may apply. If the landscape were cultural or historic, or part of a National Historic Landmark, the impacts would need to be reviewed under NHPA Section 106. Similarly, potential visual impacts on scenic byways would need to be assessed under the National Scenic Byways Program (P.L. 105–178, 23 U.S.C. §162) and laws concerning State-designated scenic byways. Consultation with the National Park Service may be required for potential impacts on the visual resources in State and national parks. Potential visual impacts for outdoor recreation sites and facilities covered by Section 6(f) of the Land and Water Conservation Fund Act (LWCFA) (P.L. 88–578, 16 U.S.C. §460) may need to be reviewed.

3.7.2 Existing Conditions

In rural settings, natural features dominate, whereas in urban settings, the landscape is composed predominantly of man-made features. Within an urban setting, natural features that may be present include parks and other green spaces, waterfalls, and ponds. Examples of man-made features in rural settings include farms (houses and barns), bridges, highways, ports (jetties and piers), paths, and lighthouses.

It is not possible to describe in detail the entire affected environment of the broad geographic scope for visual resources as assessed in this PEA. Site-specific visual resources will be addressed in project-specific NEPA documentation, as necessary.

3.8 LAND USE

3.8.1 Definition of Resource

The term "land use" refers to real property classifications that indicate either natural conditions or the types of human activity that occur or are permitted on a parcel. There is no nationally recognized convention or uniform terminology for describing land use categories; definitions are typically promulgated at the local level in the form of zoning ordinances. As a result, the meanings of land use descriptions and definitions vary among jurisdictions.

Land use plans are usually established to ensure that development proceeds in an orderly fashion, encouraging compatible uses for adjacent land. There are many tools used in the planning process, including master plans, geospatial databases, and zoning ordinances. A master plan is generally written by a county or municipality to provide a long-term strategy for growth and development. The foremost factor affecting land use is compliance and compatibility with master plans and zoning regulations. Other relevant factors include existing land use at project sites, the types of land uses on adjacent properties and their proximity to a Proposed Action, the duration of a proposed activity, and project permanence as a change in land use.

The following general land use categories will be used when discussing potential impacts to land use for this document: low, medium, and high density residential; commercial; industrial; public, quasi-public, and institutional; agricultural; vacant land; and open space. The following section will describe each area and its characteristic development and compatibility issues. Areas of particular concern include Coastal Zone Management (CZM) areas and coastal barrier islands.

As described in Section 3.4, the CZMA is administered by the Department of Commerce's Office of Coastal Resource Management and National Oceanic and Atmospheric Administration (NOAA) and applies to all coastal States and to all States that border the Great Lakes. The CZMA was established to help prevent any additional loss of living marine resources, wildlife, and nutrient-enriched areas; alterations in ecological systems; and decreases in undeveloped areas available for public use. The CZMA gives States the authority to determine whether activities of governmental agencies are consistent with Federally approved CZM programs. Each State CZM program must include provisions protecting coastal natural resources, fish, and wildlife; managing development along coastal shorelines; providing public access to the coast for recreational purposes; and incorporating public and local coordination for coastal decision making. This voluntary Federal-State partnership addresses coastal development, water quality, shoreline erosion, public access, protection of natural resources, energy facility siting, and coastal hazards.

The Federal Consistency provision, contained in Section 307 of the CZMA, allows affected States to review Federal activities to ensure that they are consistent with the State's coastal management program. This provision also applies to non-Federal programs and activities that use Federal funding and that require Federal authorization, such as the PSIC Grant Program. Any activities that may have an effect on any land or water use or on any natural resources in the coastal zone, must conform with the enforceable policies of the approved State CZM program.

The Coastal Barrier Resources Act (CBRA) (P.L. 97–348, 16 U.S.C. §§3501–3510, 42 U.S.C. §4028), administered by FWS, was enacted to protect sensitive and vulnerable barrier islands found along the U.S. Atlantic, Gulf, and Great Lakes coastlines. The CBRA established the Coastal Barrier Resources System (CBRS), which is composed of undeveloped coastal barrier islands, including those in the Great Lakes. Areas contained within the system are ineligible for direct or indirect Federal funds that might support or promote coastal development, thereby discouraging development in coastal areas.

3.8.2 Existing Conditions

A discussion of elements of land use that would be considered for PSIC-funded projects, as applicable, is provided below. Site-specific conditions may be discussed in project-specific NEPA documentation, where necessary.

General Land Use Compatibility

Residential land classifications are differentiated by the density of dwelling units per acre. While these definitions are promulgated at the local level and vary substantially across the United States, it is assumed for the purposes of this assessment that low-density residential development refers to two or fewer dwelling units per acre, where the dwelling unit is typically a single-family home. Medium-density residential development, characterized by a typical suburban single-family home development, is assumed to contain three to five dwelling units per acre. High-density residential development is characterized by six or more dwelling units per acre, where the dwelling units could be single-family homes, row houses, or condominiums and apartments. Residential uses are typically assumed to be highly sensitive to incompatible commercial and industrial development (Dublin, 2008). Incompatible development would be any development that created a conflict of uses that would result in harm to public health and safety, such as siting a chemical manufacturing plant next to a residential area. The potential for contamination of the local environment that could result in adverse impacts to health and safety would be unacceptably high.

Commercial land uses include retail sales and services, restaurants, bars, entertainment venues, public accommodations, offices, and businesses. This type of land use is integral to efficient mixed-use districts and is generally compatible with either residential or industrial development, depending on the type and density of development (CPED, 2008; Dublin, 2008).

Industrial development can cover a wide range of uses, from light industrial uses that are generally characterized as having a lower potential for environmental impacts (e.g., warehouses, distribution centers, and light manufacturing) to heavy industrial uses (e.g., chemical and automobile manufacturing, resource and energy production, steel refining and production, and oil refining) (Dublin, 2008). Industrial land uses are generally considered incompatible with residential development, particularly heavy industry, for reasons related to public health and safety. They may be selectively compatible with commercial development, as stated previously.

Public, quasi-public, and institutional land uses refer to public buildings and institutions owned and operated by governmental or other public agencies, including public schools, public cemeteries, and government offices. Institutional lands refer to public or private entities such as hospitals, religious entities, private educational facilities, private cemeteries, and other similar uses (Dublin, 2008). These land uses are generally compatible with residential and commercial development. Major exceptions are airports and ports, which are often public- or quasi-public-owned and are more similar to medium and heavy industrial land uses. Airports and ports are generally incompatible with residential land uses and sometimes incompatible with commercial land uses.

Agricultural land is defined as an ecosystem that has been modified or created specifically to grow or raise biological products for human consumption or use. This includes cropland, pasture, orchards, groves, vineyards, nurseries, ornamental horticultural areas, and confined feeding areas (IWGSDI, 1996).

Open space refers to land with limited or no development that has been reserved for public or private parks and recreation areas. This term is also used to refer to lands that are intended to be preserved in a natural state (CPED, 2008; Dublin, 2008). Vacant land refers to unimproved land that is not currently in use (CPED, 2008).

Coastal Zone

There are 34 States and Territories with approved CZM programs. There are approximately 180 PSIC investments proposed in these 34 States and Territories. If any projects are proposed for the coastal zone, a site-specific study may be required once the site is finalized.

Coastal Barriers

There are 24 States that contain land in the CBRS and are subject to the regulations established by the CBRA. Within the States that constitute the CBRS, 134 PSIC investments are proposed, and if any are proposed for the CBRS, a site-specific study may be required once the site is finalized.

3.9 INFRASTRUCTURE

3.9.1 Definition of Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure by definition includes a broad array of facilities (e.g., utility systems, streets, highways, railroads, airports, buildings and structures, and other man-made facilities). Individuals, businesses, governmental entities, and virtually all relationships between these groups depend upon this infrastructure for their most basic needs, as well as for critical and advanced needs (e.g., emergency response and health care).

Infrastructure is entirely man-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as “developed.” An essential component of economic growth to an area is the availability of infrastructure and its capacity to support growth. The infrastructure components to be discussed in this section include utilities (electricity and communications), solid waste, and the transportation network.

Public utilities can be privately or publicly owned. Public utilities are often governed by a Public Utilities Commission that regulates the rates and services of a public utility. In recent years, several laws have been passed focusing on energy conservation and production. The Energy Policy Act of 2005 (P.L. 109–58) provides tax incentives and loan guarantees for energy production of various types. The Energy Independence and Security Act of 2007 (P.L. 110–140) expanded the production of renewable fuels and contains provisions for energy efficiency, smart grid, and carbon dioxide and incentives for plug-in hybrid electric vehicles to assist the electric power industry's efforts to reduce greenhouse gas emissions.

Regulations governing communications infrastructure include Part 17 Construction, Marking, and Lighting of Antenna Structures of the FCC regulations (47 CFR Chapter 1), which prescribes procedures for antenna structure registration and requires the Federal Aviation Administration (FAA) to conduct an aeronautical study of the navigation air space to determine appropriate tower marking and lighting requirements to achieve safe air space. Before the FCC authorizes the construction of new antenna structures or alteration in the height of existing antenna structures, an FAA determination of “no hazard” may be required. FAA notification is required for any new construction greater than 200 feet above the ground, and near an airport runway (taller than 100:1 for a horizontal distance of 20,000 feet, 50:1 for a horizontal distance of 10,000 feet, and 25:1 for a horizontal distance of 5,000 feet of a heliport). By checking the heights of proposed antennae and their proximity to airports, the FCC’s TOWAIR software system assists in determining if FAA notification is required. (Please see Appendix B for more information.) The FAA can vary marking and lighting recommendations when requested, provided that aviation safety is not compromised. In all cases, safe aviation conditions around the tower are the FCC’s primary concern, and safety concerns dictate the marking and lighting requirements. Navigation air space, which starts at 200 feet above the ground, decreases in

elevation in close proximity to airports; the minimum height for required marking or lighting would decrease in these areas.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (P.L. 109–59) addresses maintenance and growth challenges of the U.S. transportation system (e.g., improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment). SAFETEA-LU regulates efforts that address national transportation problems, while giving State and local transportation decision makers the flexibility to solve transportation problems at the regional and local levels.

Solid waste, more commonly known as trash or garbage, consists of everyday items such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6901) establishes national goals to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. RCRA outlines duties and responsibilities for hazardous waste generators, transporters, storers, treaters, and disposers of hazardous waste. RCRA requires the regulation of underground storage tanks (UST), imposing structural integrity and management practice requirements.

Waste management regulations by EPA are codified at 40 CFR Parts 239–282; regulations for management of hazardous waste begin at 40 CFR Part 260. Nearly all developed areas in the continental United States have solid waste management services or programs, with municipal solid waste generally regulated and managed at the State and community level. States have enacted laws and promulgated regulations that are at least as stringent as the Federal regulations. In addition, States have the authority to carry out many of the functions of RCRA through their own hazardous waste programs (and State laws), if such programs have been approved (authorized) by EPA.

The Federal Facility Compliance Act of 1992 (P.L. 102–386) amended the Solid Waste Disposal Act and expands the enforcement authority of Federal and State regulators with respect to solid and hazardous waste management at Federal facilities. The Act requires Federal facilities to pay any nondiscriminatory fees or service charges assessed in connection with a Federal, State, interstate, or a local solid or hazardous waste regulatory program. In addition, the Act waives immunity for Federal facilities under solid and hazardous waste laws by allowing States to fine and penalize for violations.

3.9.2 Existing Conditions

A discussion of elements of infrastructure that would be considered for PSIC-funded projects, as applicable, is provided below. If a follow-on NEPA document is required for any individual project, site-specific information will be discussed at that time.

Utilities

A combination of electricity, communications, potable water, natural gas, or wastewater treatment may be required to support the implementation and operation of some PSIC-funded projects. When conducting demolition, renovations, or new construction, the presence or absence of infrastructure is an important consideration with respect to both the human and natural environment, including project costs. For utilities, areas can be categorized as developed (e.g., urban areas, developed suburban areas, and Federal installations) and undeveloped (e.g., rural and remote areas). In general, developed areas have higher

accessibility to utilities than undeveloped areas. Utilities in undeveloped areas may not exist or may be too far from proposed project sites.

Solid Waste

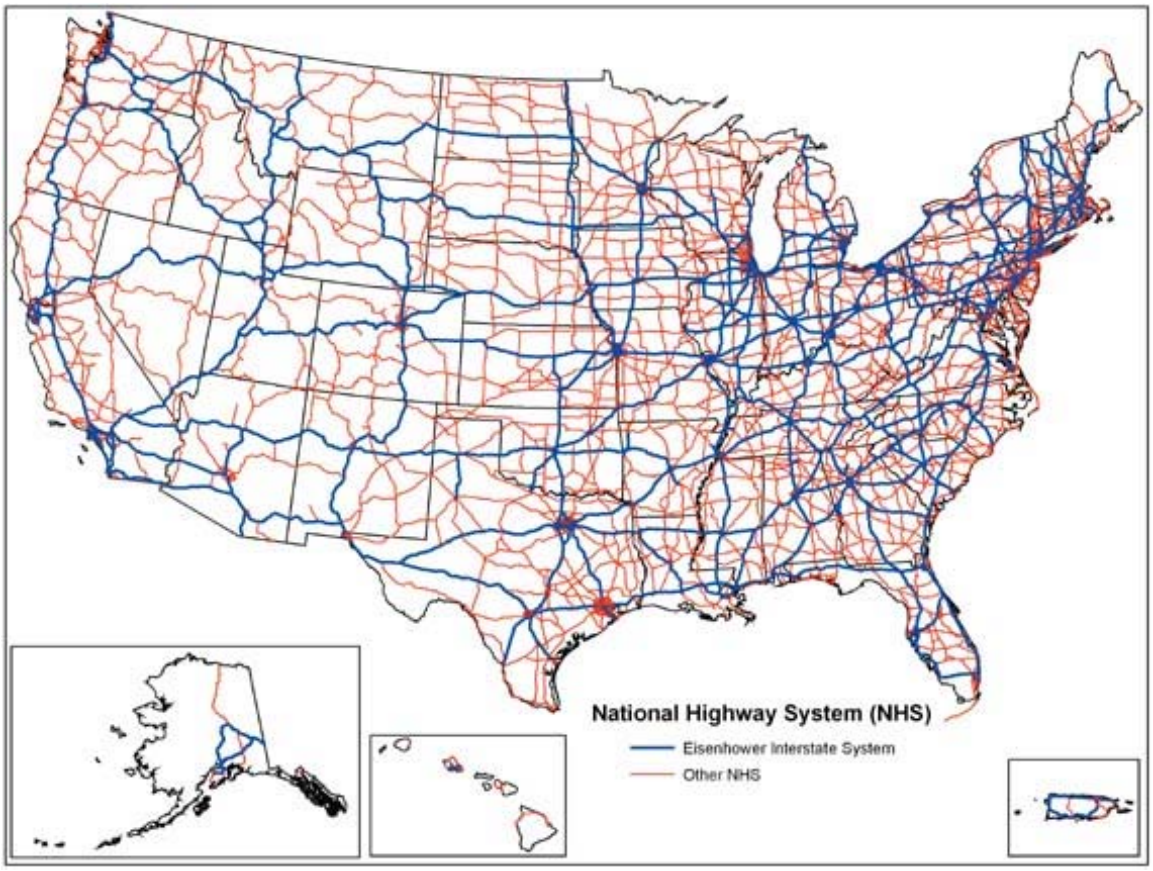
Compliance with Federal, State, and local regulations for the collection and disposal of solid wastes is mandatory. State and local agencies are often responsible for and have the most knowledge about solid waste issues under their jurisdiction. These officials should be contacted for information on potential impacts any generated solid waste may cause and how to handle and dispose of waste in an environmentally safe manner to minimize impacts. If possible, construction material would be recycled or reused or be otherwise diverted from landfills. All nonrecyclable construction and demolition waste would typically be collected in an onsite dumpster and then be transported to an approved waste-handling facility (e.g., landfill).

Transportation Network

Highways and interstates, arterial and connector streets, railroads, airports, and subways are all part of the U.S. transportation network. The National Highway System (NHS) consists of approximately 160,000 miles of roadway important to the nation's economy, defense, and mobility. The NHS includes interstates, principal arterial highways in rural and urban areas, and intermodal connectors (USDOT, 2008). The Interstate Highway System, often referred to as the Eisenhower Interstate System, is a separate system in the larger NHS and has a total length of approximately 46,800 miles. Interstate highways usually receive Federal and State funding, comply with Federal standards, and are owned, built, and operated by States or toll authorities, most of which are publicly owned. Figure 3-10 illustrates NHS roadways, including the Eisenhower Interstate System.

The U.S. rail system is extensively and primarily used for freight transport. Nearly all railroad corridors (not including local transit rail systems) are owned by private freight companies, which provide freight service. Amtrak metropolitan commuter rail services pay companies for the rights to use the tracks for passenger service. There are approximately 150,000 miles of mainline rail routes in the United States. In many developed areas, metro or light rail systems are used for high-capacity passenger service.

Figure 3-10. National Highway System



Source: USDOT, 2008.

Since the locations of PSIC-funded projects cover a broad geographic area, impacts to transportation networks and access from such networks would vary widely.

3.10 SOCIOECONOMIC RESOURCES

3.10.1 Definition of Resource

Socioeconomics comprise the basic attributes and resources associated with the human environment, including demographic, economic, and social assets of a community. Demographics focus on population trends and age. Economic metrics provide information on employment trends and industries. Housing, infrastructure, and services are also influenced by socioeconomic factors.

EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) directs agencies to address environmental and human health conditions in minority and low-income communities. Environmental justice addresses the disproportionate and adverse effects of a Federal action on low-income or minority populations. The intent of EO 12898 and related directives and regulations is to ensure that low-income and minority populations do not bear a disproportionate burden of negative effects resulting from Federal actions. The general purposes of EO 12898 are the following:

- To focus the attention of Federal agencies on human health and environmental conditions in minority communities and low-income communities with the goal of achieving environmental justice

- To foster nondiscrimination in Federal programs that substantially affect human health or the environment
- To give minority communities and low-income communities greater opportunities for public participation in, and access to, public information on matters relating to human health and the environment.

To better characterize and evaluate this resource area, general category descriptions help define and weigh Federal action impacts on socioeconomic resources and environmental justice. These categories include economic characteristics such as low-income areas, housing characteristics such as medium- to high-density residential areas and rural areas, and demographic characteristics such as areas with a high percentage of minorities.

Low-income or poverty areas are defined using the statistical poverty threshold from the U.S. Census Bureau (USCB), which is based on income and family size. The USCB defines a poverty area as a census tract in which 20 percent or more of its residents are below the poverty threshold and an extreme poverty area as one in which 40 percent or more are below the poverty level. The 2007 poverty threshold for a family of four with two children under the age of 18 was $21,027 (USCB, 2008).

The USCB typically defines rural areas as towns outside of an urbanized area with a population of less than 2,500. Definitions of medium- and high-density residential development are typically promulgated at a local level through zoning ordinances and can be addressed on a site-specific level. Typically, however, medium density residential development is characterized by between three and five units, often specifically single-family detached units, per acre. High-density residential development, therefore, may be generally characterized by more than six units per acre (CPED, 2008; Dublin LULRP, 2008).

Finally, as defined by the Environmental Justice Guidance Under NEPA (CEQ, 1997), minority populations include persons who identify themselves as Asian or Pacific Islander, Native American or Alaskan Native, black (not of Hispanic origin), or Hispanic. Race refers to census respondents' self-identification of racial background. Hispanic origin refers to ethnicity and language, not race, and may include persons whose heritage is Puerto Rican, Cuban, Mexican, and Central and South American. A minority population exists where the percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population. In addition, a minority population also exists if there is more than one minority group present and the minority percentage, when calculated by aggregating all minority persons, meets one of the above thresholds.

3.10.2 Existing Conditions

It is not possible to describe in detail socioeconomic conditions for the entire affected environment, considering the nationwide scope of the PSIC Grant Program. Site-specific socioeconomic impacts will be assessed in project-specific NEPA documentation, as necessary.

The PSIC Grant Program has been funded for $968,385,000. The average award to a State or Territory is $17,292,589. The smallest award amount is $691,948 to the Territory of American Samoa, whereas the largest amount is $94,034,510 to the State of California. These expenditures of public resources have the potential to impact socioeconomic resources in all 50 States, 5 Territories, and the District of Columbia through both direct impacts, such as job creation in the form of manufacturing and construction jobs, and indirect impacts, such as secondary spending as the result of job creation, and other indirect impacts. Environmental justice impacts are inherently site-specific and would only be of concern for projects proposed in low-income or minority areas.

3.11 HUMAN HEALTH AND SAFETY

3.11.1 Definition of Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses workers' health and safety, and public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction-site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous regulations designed to comply with standards issued by Occupational Safety and Health Administration (OSHA), EPA, and State agencies. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Hazardous materials, often characterized as hazardous substances or hazardous wastes, are any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce (49 CFR 172). Hazardous substances were originally defined as any element, compound, mixture, solution, or substance defined as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and listed in 40 CFR 302. CERCLA defines hazardous wastes as any wastes that possess hazardous characteristics of toxicity, ignitability, corrosivity, or reactivity, or are listed as a hazardous waste in Subpart D of 40 CFR Part 261.

The Superfund Amendments and Reauthorization Act (SARA) (42 U.S.C. §103) and the Toxic Substances Control Act (TSCA) (15 U.S.C. §2601) amended CERCLA. SARA establishes several important changes and additions to the Superfund program. The Congressional intent of SARA was to do the following:

- Emphasize the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites
- Require Superfund actions to consider the standards and requirements found in other State and Federal environmental laws and regulations
- Provide new enforcement authorities and settlement tools and increase State involvement in all phases of the Superfund program
- Increase the focus on human health problems posed by hazardous waste sites
- Encourage greater citizen participation in making decisions on how sites should be cleaned up.

SARA also required EPA to revise the Hazard Ranking System to ensure that it reviews the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List.

TSCA provides for the Federal regulation of the manufacture, use, distribution in commerce, and disposal of chemical substances that present a hazard to health or the environment. The major objective of TSCA is to characterize and understand the risks that a chemical presents to humans and the environment, before it is introduced into commerce. TSCA contains specific requirements relative to polychlorinated biphenyls, asbestos, and radon, which are of potential concern to PSIC-funded projects.

EPA regulates hazardous chemicals, substances, and wastes under CERCLA, SARA, RCRA, and TSCA. These regulations provide requirements for the generation, storage, transportation,

treatment, and disposal of hazardous materials and hazardous waste. EPA and various States have regulations for the operation and maintenance of underground and aboveground storage tanks.

EO 12088 (Federal Compliance with Pollution Control Standards) directs Federal agencies to comply with "applicable pollution control standards" in prevention, control, and abatement of environmental pollution. The order also requires agencies to consult with EPA and State and local agencies on the best techniques and methods available for prevention, control, and abatement of environmental pollution. CEQ's Memorandum on Pollution Prevention and NEPA encourage early consideration of opportunities for pollution prevention (CEQ, 1993).

3.11.2 Existing Conditions

Safety and accident hazards can often be identified and reduced or eliminated. Elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. PSIC-funded activities that can be hazardous include transportation, maintenance and repair, radiation exposure, and the creation of highly noisy environments. Site-specific health and safety impacts will be assessed in project-specific NEPA documentation, as necessary.

The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with a potentially explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

For construction operations associated with any PSIC-funded projects, any waste contaminated with hazardous waste, asbestos-containing material, lead-based paint, or other undesirable components would be disposed of following hazardous waste management procedures.

4.0 ENVIRONMENTAL CONSEQUENCES

The following five sections will evaluate the environmental impacts associated with the implementation of the Proposed Action describe the alternatives described in Section 2.1, including the No Action Alternative. This chapter has been organized by each of the five project types defined in Section 2.0. Within each project type, each of the 11 resource areas defined in Chapter 3, Affected Environment, are evaluated. Significance criteria, used to define thresholds for environmental impacts, are defined for each resource area.

The following environmental consequences subsections are intended to identify types of PSIC-funded projects that may require further analysis under NEPA and to distinguish them from PSIC-funded projects that are not expected to have any environmental impact and would not require further analysis to comply with NEPA. For all projects, there are certain circumstances that will require the preparation of further analysis under NEPA, regardless of other project characteristics. These circumstances include impacts to protected resources and may require the project to implement mitigation measures.

Regardless of the project type, all individual projects must be reviewed to determine if the project will involve extraordinary circumstances, defined as an otherwise benign project that involves unusual risks or impacts. The criteria for this determination are listed below, and an EA must be prepared for the project if one or more of the following conditions exist:

- A potentially significant impact on public health and safety
- A potentially significant impact on species or habitats protected by the ESA, Marine Mammal Protection Act, MBTA, or Magnuson-Stevens Fishery Conservation and Management Act
- A potentially significant impact on a district, site, highway, structure, or object that is listed in or eligible for listing in the NRHP or a historic or cultural resource or traditional and sacred sites or the loss or destruction of a significant scientific, cultural, or historical resource
- A potentially significant impact on an environmentally sensitive area, such as critical habitat, wetlands, and floodplains
- A potential or threatened violation of a Federal, State, or local law or administrative determination imposed for the protection of the environment (Some examples of administrative determinations to consider are a local noise control ordinance; the requirement to conform to an applicable SIP; and Federal, State, or local requirements for the control of hazardous or toxic substances.)
- An impact on the quality of the human environment that is likely to be highly controversial with regard to scientific validity, likely to be highly uncertain, or likely to involve unique or unknown environmental risks
- Employment of new technology or unproven technology that is likely to involve unique or unknown environmental risks, where the impact on the human environment is likely to be highly uncertain, or where the impact on the human environment is likely to be highly controversial in terms of scientific validity
- Extent to which a precedent is established for future actions with significant impacts
- Potential for significant degradation of existing poor environmental conditions or initiation of a potentially significant environmental degrading influence, activity, or impact in areas not already significantly modified from their natural condition
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

4.1 ENVIRONMENTAL CONSEQUENCES—TRANSMITTING AND RECEIVING SITES

The implementation of the Proposed Action or one of its alternatives has the potential to impact environmental resources throughout the 50 States, 5 Territories, and the District of Columbia. This section identifies and evaluates the environmental impacts associated with each of the alternatives to implement the Transmitting and Receiving Sites Proposed Action and the No Action Alternative.

To facilitate the evaluation of the group of projects defined as transmitting and receiving sites, it is helpful to classify them by similar attributes that correlate to likely environmental impact during construction and operation. Projects at both existing and new transmitting and receiving sites generally fit into one of five categories, ranked below from lowest to highest potential for environmental impacts. These categories are used to define and identify projects that may require a site-specific follow-on study and to identify those projects for which no further NEPA analysis would be required. In all categories, infrastructure is defined as including communications towers, equipment shelters, generators and backup power systems, repeaters, gateways, microwave backhauls, fiber optic cable, antennae, and access roads to sites. The categories are as follows:

1. Existing sites with infrastructure in place that are being upgraded with new technology or frequency changes (these sites involve little or no ground-disturbing activity)
2. Existing or previously disturbed sites with new construction of infrastructure, where any towers are less than 200 feet above the ground, meet FCC radiofrequency radiation emission standards, do not require high intensity lighting, are well removed from air traffic, and ground-disturbing activity involves less than 1 acre
3. New undisturbed sites with new construction of infrastructure where any towers are less than 200 feet above the ground, meet FCC radiofrequency radiation emission standards, do not require high intensity lighting, are well removed from air traffic, and ground-disturbing activity involves less than 1 acre
4. Existing sites with new construction of infrastructure where any towers are 200 or more feet above the ground, near airports, exceed FCC radiofrequency radiation emission standards, require high intensity lighting, or ground-disturbing activity involved 1 acre or more (An EA will be required for projects in this category.)
5. New undisturbed sites with new construction of infrastructure where any towers are 200 or more feet above the ground, near airports, exceed FCC radiofrequency radiation emission standards, require high intensity lighting, or ground-disturbing activity involved 1 acre or more (An EA will be required for projects in this category.)

The projects described in Categories 1 to 5, above could potentially occur as part of the Preferred Alternative. Projects described in Categories 3 and 5 would not occur in Alternative 2, since it would not allow the use of previously undisturbed sites. None of the projects described in any of the categories would be part of the No Action Alternative. Projects in Categories 4 and 5 require preparation of site-specific EAs and are not included in the analysis below.

4.1.1 Noise

Noise analyses typically evaluate potential changes to the existing noise environment that would result from implementation of a proposed action. Because PSIC-funded projects that may be implemented across 50 States, 5 Territories, and the District of Columbia, and specific locations of projects have not yet been determined, potential noise impacts were evaluated qualitatively on the basis of the activities normally associated with the alternative being reviewed. Once a specific proposed project area has been finalized, quantitative noise analyses can be conducted

in future site-specific environmental documentation on the basis of the potential impact anticipated, as required by Federal or State laws and regulations. Noise impacts attributable to the Proposed Action would result from construction vehicles and activities and operation of generators.

4.1.1.1 Criteria

Impacts to noise have been evaluated using the following criteria:

No Impact. Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.
No Significant Impact. Noise levels resulting from alternatives to implement the Proposed Action would exceed natural sounds, as described under no impact, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature.
Significant Impact. Noise levels would exceed typical noise levels from construction equipment and generators permanently or for a prolonged period of time.

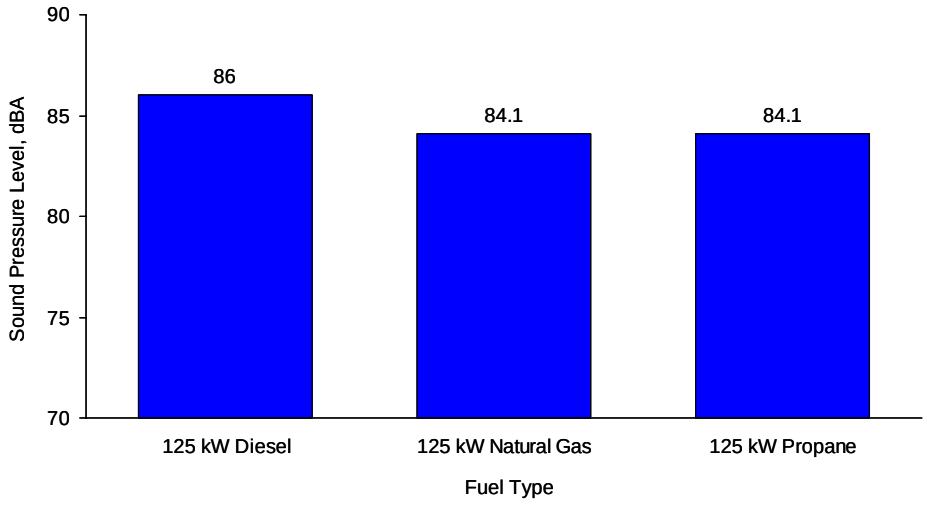
4.1.1.2 Noise Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. Because of construction-related activities, there would be a temporary increase in localized noise generated during construction activities. Construction activities for new or existing infrastructure, Categories 1 through 5 as defined above, may result in short-term negligible adverse impacts. Noise from construction activities varies depending on the construction type, where the construction would occur, and the distance from the source of the noise. Noise from various construction activities (building, grading, and paving) were shown in Table 3-1. The noise levels generated by construction equipment would vary substantially depending on the project, the type of equipment used, operations schedule, and condition of the project area. In addition to daily variations in construction activities, major construction projects for new infrastructure would be accomplished in several different stages, with each stage having a specific equipment mix for the work to be accomplished.

The use of heavy equipment during construction activities may result in short-term minor adverse impacts on the noise environment, especially if noise-sensitive populations are adjacent to a proposed site. Typically, construction-related noise generation would last only for the duration of construction activities and occur during normal working hours (i.e., 7:00 a.m. to 5:00 p.m.), when noise is tolerated better because of the masking effect of background noise, with equipment being shut off when not in use. Evening noise levels would likely drop to ambient noise levels of the project area. Therefore, it is anticipated that noise impacts from the Preferred Alternative construction activities would be short-term and would not exceed typical noise levels. Construction-related noise impacts would not be significant.

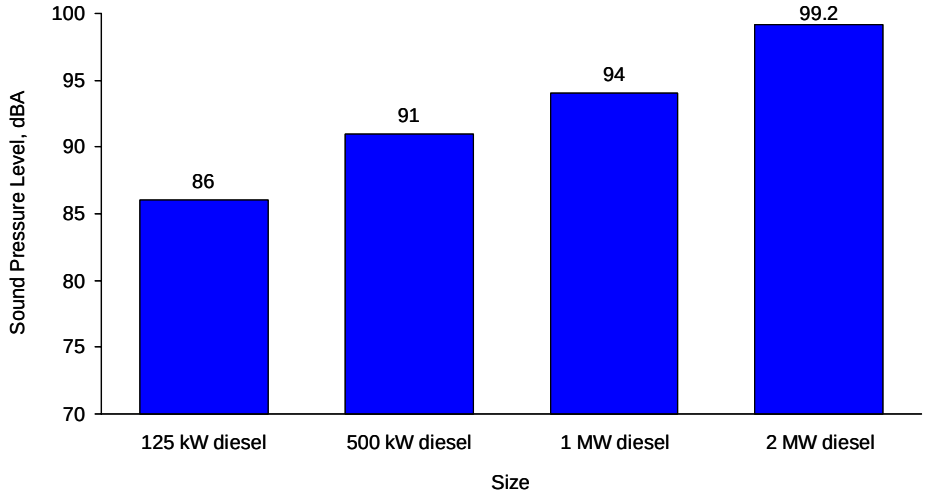
Operations-Related Impacts. After construction has concluded, the ambient noise level would return to its normal level. Implementation of this alternative would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. Temporary noise could be generated by climate control (i.e., heating and air conditioning) equipment or backup generators at the project site. As identified in Section 3.1.2, backup generators included in the Preferred Alternative provide electric power to communications equipment as needed. Electric generators at transmitting and receiving sites are typically powered by either diesel or spark ignition (i.e., propane or natural gas) engines. Noise from backup generators is primarily composed of engine noise and exhaust noise. Figure 4-1 depicts the noise levels for a typical 125-kilowatt (kW) generator by fuel type, and Figure 4-2 provides the noise levels by generator size. Noise levels increase with the size of the generator.

Figure 4-1. Sound Pressure Level by Fuel Type (23 feet from source)



Source: ASHRAE, 2008.

Figure 4-2. Sound Pressure Level by Generator Size (23 feet from source)



Source: ASHRAE, 2008.

Backup generators at PSIC-funded transmitting and receiving sites would not be expected to cause the ambient noise levels to increase. It is anticipated that the use of generators would be limited, during equipment maintenance and testing as a backup for primary power equipment and during interruption of the primary (grid) power supply. At a national, programmatic level, it is estimated that the generators at typical transmitting and receiving sites would be operated for approximately 12 to 16 hours per year, based on manufacturer maintenance instructions and public safety agency standard operating procedures (SOP).

In some instances, a PSIC-funded project may include the replacement of an older (louder) generator with a more efficient (quieter) model. Therefore, a decrease in ambient noise levels could be realized.

Because of the occasional and intermittent operation of backup generators, the Preferred Alternative is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. Regardless of category, impacts to ambient noise levels resulting from the Preferred Alternative would not exceed typical operating noise levels and would be short-term. Therefore, there would be no significant long-term impacts.

4.1.1.3 Noise Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. The levels of unavoidable, short-term noise associated with the construction-related activities for all five categories of transmitting and receiving sites would be roughly equivalent to those discussed for the Preferred Alternative, based on anticipated equipment use. The use of previously disturbed sites would not necessitate substantively different construction practices; therefore, construction equipment use would be similar to that of the Preferred Alternative. Construction-related noise impacts would not be significant.

Operations-Related Impacts. After construction activities have concluded, the ambient noise level would return to its normal level. Temporary noise could be generated by climate control (i.e., heating and air conditioning) equipment or backup generators at the project site. Backup generator operation would be similar to that of the Preferred Alternative. Similar to the Preferred Alternative, implementation of Alternative 2 would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. As described in Section 4.1.2, backup generators are installed to provide electric power to communications equipment as needed.

In some instances, a PSIC-funded project may include the replacement of an older (louder) generator with a more efficient (quieter) model. Therefore, a decrease in ambient noise levels could be realized.

Because of the occasional and intermittent operation of backup generators, Alternative 2 is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. Any increases in ambient noise levels would not exceed typical noise levels and would be short-term. No significant long-term impacts to the average ambient noise level would occur because of Alternative 2.

4.1.1.4 Noise Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, the PSIC-funded projects would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. No adverse impacts on the ambient noise environment would occur under the No Action Alternative. Correspondingly, potential decreases in ambient noise levels by the replacement of older, louder generators with more efficient, quieter models would not result under the No Action Alternative.

4.1.2 Air Quality

Impacts to air quality can come from a variety of sources located at transmitting and receiving sites, across all categories described in Section 4.1. During construction, sources of new emissions include construction vehicles and equipment and fugitive dust emissions resulting from ground-disturbing activities and demolition. Operations-related impacts to air quality from transmitting and receiving sites would occur as a result of the operation of backup generators, which burn fossil fuels. Air quality impacts are not site-specific in nature but are instead typically addressed at a regional level based on the airshed, as described in Section 3.2.

4.1.2.1 Significance Criteria

Impacts to air quality have been evaluated using the following criteria:

No Impact. Impacts to air quality would not occur as a result of the action.
No Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas are less than exceedance levels, as defined in Table 3-3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Projects are *de minimis* or conform to SIP in nonattainment and maintenance areas.
Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas would be greater than the exceedance levels. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS. Projects do not conform to SIP in nonattainment and maintenance areas.

4.1.2.2 Air Quality Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. Air quality impacts during construction would originate from emission of construction vehicles and equipment and fugitive dust stirred up during ground-disturbing activities. Both would be temporary and of limited duration. Air quality impacts from construction activities vary depending on the construction type, where the construction would occur, and the distance from the source of the emission. An NSR permit may be required, depending on the AQMD in which the proposed project would be located. Furthermore, for those proposed projects in nonattainment or maintenance areas, a conformity determination may be required.

The use of heavy equipment during construction activities may result in short-term minor adverse impacts on air quality on and near the proposed site. Typically, construction-related air quality impacts would last only for the duration of construction activities and occur during normal working hours (i.e., 7:00 a.m. to 5:00 p.m.), and would not result in increases in criteria air pollutants greater than exceedance levels as defined in Table 3-3. Therefore, it is anticipated that short-term negligible adverse impacts would be expected as a result of construction activities. There would be no significant impact to air quality from construction activities.

The minor emissions from construction can be further reduced or mitigated through the use of best management practices (BMP). BMPs for dust control include spraying water to minimize dust, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize fugitive dust, using a soil stabilizer (chemical dust suppressor), mulching, using a temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks hauling dirt. BMPs for construction vehicle and equipment emissions include limiting vehicle idling time, using low or ultra-low sulfur fuel (including biodiesel), conducting proper vehicle maintenance, and using electric- instead of gas-powered tools. Use of locally available products and materials would reduce transportation-related emissions.

In light of the limited size of all five categories of PSIC transmitting and receiving projects, including those larger projects with more than 1 acre of ground disturbance, even construction of a completely new facility is unlikely to result in any exceedance of air quality standards, regulated release of Hazardous Air Pollutants (HAP), or in more than a *de minimis* increase in emissions. In summary, there would be no impact to air quality from construction activities.

Operations-Related Impacts. After the construction activities have concluded, the ambient air quality level would return to its normal level. Implementation of this alternative would not result in the long-term operation of significant emission-generating sources, nor would it significantly increase or alter the existing levels of ambient air quality levels. As identified in Section 3.1.2, backup generators may be a component of some PSIC-funded transmitting and receiving projects. Generators are commonly used to provide backup electrical power for communications

equipment during an emergency and would be operated as needed. Generator engines can run on gasoline, diesel, natural gas, or liquid propane.

Existing backup generators do not have to meet any emissions standards; the only requirement they must meet states that they must be operated according to the generator manufacturer's maintenance and operating instructions to help minimize emissions (40 CFR §§ 89 and 90). New backup generators must be certified to meet the Nonroad Standards set by the EPA (40 CFR §§ 89 and 90) for nonroad engines (manufacturers build and certify the generators to these standards and have models ready to purchase). Backup generators may only operate during an emergency ("lights out") or for testing or maintenance being performed on the generator. Federal regulations limit the use of backup generators to 500 hours per year. Individual states or air quality control boards may have established a lower limit. An NSR permit may be required, depending on the AQMD in which the proposed project would be located. Furthermore, for those proposed projects in nonattainment areas, a conformity determination may be required.

Backup generators would not be expected to cause the ambient air quality levels to increase because of their limited operation as emergency power sources. To the degree that older generators are replaced with new, cleaner-burning generators, the implementation of PSIC-funded transmitting and receiving site projects would result in a reduction in emissions. The use of backup generators is not expected to result in increases in criteria air pollutants greater than exceedance levels as defined in Table 3-3. Therefore, it is not anticipated that adverse long-term impacts on the ambient air quality level would occur. There would be no significant impact to air quality from operations activities.

Air quality impacts from backup generators can be reduced by installing emission control devices; using biodiesel, liquid propane, or compressed natural gas instead of diesel fuel; using low or ultra-low sulfur diesel fuel; and properly maintaining equipment.

4.1.2.3 Air Quality Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. Construction air quality impacts for this alternative would be similar to those of the Preferred Alternative but of a lower quantity. Using only existing sites would reduce construction and ground-disturbing activities, resulting in lower vehicle and equipment emissions and dust generation.

Operations-Related Impacts. Operations-related air quality impacts for this alternative would be similar to those of the Preferred Alternative, because the operations requirements would be the same regardless of whether the project site was previously disturbed.

4.1.2.4 Air Quality Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, there would be no renovations to existing transmitting and receiving sites, nor would there be any new construction of such sites. There would be no increase in air quality impacts from the No Action Alternative. Correspondingly, potential decreases in current air quality impacts by the replacement of old (dirtier) generators with more efficient (cleaner) models would not result under the No Action Alternative.

4.1.3 Geology and Soils

Impacts to geology and soils from transmitting and receiving sites would result from ground-disturbing activities, such as excavation, grading, backfilling, trenching, and other activities. Since PSIC-funded projects are characterized by substantial geographic diversity across all 50 States, 5 Territories, and the District of Columbia and impacts to geology and soils are site-specific in nature, impacts were evaluated qualitatively based on the activities normally associated with the proposed project reviewed. Once a specific proposed project area has been finalized, quantitative analyses of impacts to geology and soils can be conducted in future site-

specific environmental documentation, as required by Federal or State laws and regulations, on the basis of the potential impact anticipated.

4.1.3.1 Significance Criteria

Impacts on geology and soils have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.1.3.2 Geology and Soils Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. For transmitting and receiving projects that would not involve any ground-disturbing activities during construction, as in Category 1 as defined in Section 4.1, there would be no impact to geology and soils. For those projects for which ground disturbance would be required (Categories 2 through 5), depth to bedrock and the physiographic region in which the project were located would help determine the extent of impacts to natural geologic features. For those projects where ground disturbance of 1 acre or more would be required (Categories 4 and 5), a site-specific study would be necessary to determine the extent and nature of impacts.

Soil erosion and runoff may occur from the construction site as a result of ground-disturbing activities, such as vegetation clearing, grading, and digging. Issues of erosion and runoff would be worse in physiographic regions where steep slopes are prevalent (i.e., mountainous regions). Grantees must comply with all State and Territory stormwater protection regulations, which may include the preparation of a stormwater pollution prevention plan.

Any PSIC-funded projects that would remove farmlands defined as prime or unique by the FPPA, and discussed in Section 3.3.1, must consult with the USDA to determine whether mitigation would be required and adhere to all regulatory requirements.

Operations-Related Impacts. The operation of PSIC-funded transmitting and receiving projects would not involve any ground-disturbing activities or other activities that would affect geology and soils. There would be no impacts to geology and soils, including prime and unique farmlands.

4.1.3.3 Geology and Soils Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. Because only previously disturbed sites would be used under Alternative 2, impacts to geologic resources resulting from construction associated with this alternative would be less adverse than those expected under the Preferred Alternative. If ground disturbance occurred at some point before implementation of the proposed PSIC project, the likely presence of pristine geologic resources is reduced, thereby substantially reducing the possibility of adverse impacts. However, for any projects with the potential for ground-disturbing activities of 1 acre or more, a site-specific study would still be required to determine the extent and nature of impacts.

As with the Preferred Alternative, any PSIC-funded projects that would remove farmlands defined as prime or unique by the FPPA and discussed in Section 3.3.1 must consult with the USDA to determine whether mitigation would be required and adhere to all regulatory requirements.

Operations-Related Impacts. The operation of transmitting and receiving projects would not involve any ground-disturbing activities. There would be no impacts to geology and soils, including prime and unique farmlands.

4.1.3.4 Geology and Soils Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, there would be no new construction of transmitting and receiving projects, no improvements to existing towers, and no ground-disturbing activities undertaken. There would be no impact to geology and soils as a result of the No Action Alternative.

4.1.4 Water Resources

Impacts to water resources can result from several types of activities and procedures that would be in use at transmitting and receiving sites. Impacts would typically result from erosion caused by site runoff, direct contamination by chemicals used in the surrounding area that would be washed into a water body or absorbed into the water table, and building directly in or adjacent to a water resource (e.g., wetland). The use of erosion-control BMPs to reduce impacts is common practice and may improve water quality at a site. Development in floodplains poses a hazard both to human safety from flood events and to natural resources from the disruption of natural hydrologic patterns. Impacts to water resources resulting from the Proposed Action have been evaluated qualitatively, as specific project sites have not yet been finalized.

4.1.4.1 Significance Criteria

Impacts on water resources have been evaluated using the following criteria:

No Impact. Current water quality and hydrologic conditions would not be altered, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts (chemical, physical, or biological effects) resulting from alternatives to implement the Proposed Action would be either not detectable, or detectable but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to the historical baseline may occur but only on a localized and short-term basis.

Significant Impact. Impacts (chemical, physical, or biological effects) resulting from alternatives to implement the Proposed Action would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; or chemical, physical, or biological water quality standards or criteria would be locally, slightly, and singularly exceeded on either a short-term or prolonged basis.

4.1.4.2 Water Resources Impacts, Preferred Alternative, Transmitting and Receiving Sites

4.1.4.2.1 Surface Water and Groundwater

Construction-Related Impacts. Water quality impacts during construction would come from erosion and runoff resulting from soil disturbance for material storage, site access, site preparation, or road and driveway construction. Vehicle and equipment washing could also increase sediment reaching nearby streams. Vehicle and equipment refueling has the potential for spills of petroleum products. Pesticides or herbicides used to help re-vegetate areas cleared during construction also have the potential to contaminate nearby waters. All these activities would be temporary and of limited scope.

Water quality impacts from construction activities would vary depending on the construction type, soils where the construction would occur, and the distance between the proposed project site and the receiving waters. Construction of projects in Categories 2 through 5 is expected to result in greater degradation of surface water and groundwater resources, as defined in Section 4.1, as a result of increased erosion from ground-disturbing activities and a greater scope of construction and renovation activities. Impacts would not be significant. Considering the relatively limited size of PSIC transmitting and receiving projects, including those larger projects with 1 acre or more of ground disturbance, even construction of a complete new facility is unlikely to result in a significant amount of erosion.

The minor erosion and runoff from construction can be further reduced or mitigated through the use of BMPs. BMPs for erosion control include silt fencing or straw bales to control erosion, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize erosion, replanting as soon as practicable, mulching, using temporary gravel cover, and limiting the number and speed of vehicles on the site. A spill plan should be developed and followed.

Chemical, physical, or biological effects to water resources are not expected to result in the violation of water quality standards and criteria. There would be no significant impact to water quality from construction activities.

Operations-Related Impacts. Operations-related impacts would be limited to erosion that occurs before the site is fully re-vegetated or during refueling of the heating system and backup generator. The use of pesticides or herbicides also has the potential to contaminate nearby waters.

BMPs from the construction stage should be continued until the site is fully re-vegetated. A spill plan should be developed and followed to guide the required response in the event of a spill. Limiting the use of pesticides and herbicides or following integrated pest management practices could reduce this potential impact.

Chemical, physical, or biological effects to water resources are not expected to result in the violation of water quality standards and criteria. There would be no significant impact to water quality from operations activities.

4.1.4.2.2 Floodplains

Under the Preferred Alternative, grantees would avoid siting new PSIC-funded transmitting and receiving projects in 500-year floodplains, in accordance with EO 11988, since the projects would constitute a critical action. If there is no practicable alternative to siting in a 500-year floodplain, then the grantee would modify the project to reduce the hazards and risks associated with floodplain development and engage appropriate Federal and public entities to perform a site-specific analysis. Impacts to floodplains from these projects, as well as appropriate mitigation measures, would be determined through the site-specific analysis.

Work performed on existing transmitting and receiving sites located in 500-year floodplains would not have any impacts, because there would be no new floodplain development.

4.1.4.3 Water Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

4.1.4.3.1 Surface Water and Groundwater

Construction-Related Impacts. Construction-related water quality impacts for this alternative would be similar to the Preferred Alternative but of a lower quantity. Using only existing, previously disturbed sites could reduce construction and ground-disturbing activities.

Chemical, physical, or biological effects to water resources are not expected to result in the violation of water quality standards and criteria. There would be no significant impacts from construction under Alternative 2.

Operations-Related Impacts. Operations-related water quality impacts for this alternative would be similar to those of the Preferred Alternative, because there would be no difference in operating procedures.

Chemical, physical, or biological effects to water resources are not expected to result in the violation of water quality standards and criteria. There would be no significant impacts from operations under Alternative 2.

4.1.4.3.2 Floodplains

Impacts to floodplains under Alternative 2 would be minimized, because only previously disturbed sites would be used. Correspondingly, any further development at existing transmitting and receiving sites within floodplains would be avoided, since the projects would constitute a critical action. As with the Preferred Alternative, work performed on existing transmitting and receiving sites located in 500-year floodplains would not have any impacts.

4.1.4.4 Water Resources Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, there would be no PSIC-funded renovation or construction of transmitting and receiving sites. There would be no risk of soil erosion and runoff from construction-related activities, nor would there be a risk of hazardous spills from pesticides or fertilizers used to re-vegetate a disturbed site. Therefore, there would be no increase in impacts to either water resources or floodplains from the No Action Alternative.

4.1.5 Biological Resources

Impacts to biological resources can result from several activities, including construction activities such as demolition, grading, excavation, and construction that could alter or destroy habitat, either temporarily or permanently. In addition, the continued presence of human activity on a smaller scale could result in behavioral impacts to certain animal species that could affect feeding and reproductive patterns and habits. Impacts to biological resources are often site-specific in nature. In this PEA, they have been addressed qualitatively, and those subjects have been identified for which a more site-specific, quantitative analysis would be beneficial.

4.1.5.1 Significance Criteria

Impacts to wildlife, wildlife habitat, and vegetation have been evaluated using the following criteria:

No Impact. Impacts to native species, their habitats, or the natural processes sustaining them would not occur, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to native species, their habitats, or the natural processes sustaining them as a result of alternatives to implement the Proposed Action would be detectable but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Impact. Impacts from alternatives to implement the Proposed Action on native species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some

individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to Federally listed threatened and endangered species have been evaluated using terminology defined under the ESA as follows:

No effect. Listed species or designated critical habitat would not be affected *or* listed species or designated critical habitats are not present.
May affect / not likely to adversely affect. Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of "not likely to adversely affect."
May affect / likely to adversely affect. An adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternatives to implement the Proposed Action or its interrelated or independent actions, and the effect is neither discountable nor insignificant; nor is it beneficial. The conclusion that a proposed project is "likely to adversely affect" requires initiation of formal Section 7 consultation and may also require the preparation of an EIS.
Likely to jeopardize proposed species / adversely modify proposed critical habitat. Situations are identified in which the alternatives to implement the Proposed Action could jeopardize a proposed species or adversely modify critical habitat to a species. If this criterion is reached, conference is required with FWS or NMFS, and the preparation of an EIS may also be required.

4.1.5.2 Biological Resources Impacts, Preferred Alternative, Transmitting and Receiving Sites

4.1.5.2.1 Wildlife, Wildlife Habitat, and Vegetation

Construction-Related Impacts. Short- and long-term minor to moderate adverse impacts on wildlife, habitats, and vegetation would be expected as a result of construction-related activities for PSIC-funded projects under the Preferred Alternative. Construction activities for new or existing infrastructure may result in the disturbance of habitats and wildlife. Potential adverse impacts on vegetation and wildlife associated with site development from Categories 2 through 5, as defined in Section 4.1, would vary depending on the characteristics of the PSIC-funded project. Construction-related activities in an urbanized environment would be expected to have less potential for adverse impacts on native vegetation than activities in rural (naturally vegetated) areas that would generally have more wildlife and habitat present.

Construction-related activities that could adversely impact vegetation at a PSIC-funded project site include clearing and grading of vegetated areas in preparation of new infrastructure construction or existing infrastructure renovations. Short- or long-term minor impacts would largely be localized to the immediate project area. The introduction of invasive vegetation into disturbed areas and surrounding areas could result in long-term impacts to the native plant community at project sites and surrounding areas. Regardless of the location of the PSIC-funded project, the nature of the construction impacts to vegetation (i.e., direct destruction from grading and clearing, loss of permanent habitat) would be similar within physiographic regions, while the extent of the impacts would depend on the size of the project. These impacts would be primarily associated with Categories 2 through 5, not with Category 1. Generally, the significance of vegetation loss associated with a PSIC-funded project would depend on the amount of area disturbed, the types of plant communities (and habitats) that would be affected, the nature of the impact, and the capacity for the disturbed habitat to recover. These factors would determine whether the construction-related activities to vegetation would be short- or long-term.

Similar to impacts to vegetation, construction impacts to wildlife and wildlife habitat depend on the physiographic region of the PSIC-funded project and on the nature and extent of the habitats at the project area and surrounding vicinity. Construction-related activities may reduce, alter, or fragment habitat; introduce invasive species; disrupt natural behavior; and injure or cause mortality to wildlife. The overall impact of construction-related activities on wildlife populations would depend on the type and amount of wildlife habitat that would be disturbed, the nature of the disturbance (i.e., permanent or temporary), and the wildlife that occupy the project site and surrounding areas. Construction-related activities may result in mortality of some less mobile species (i.e., reptiles, amphibians, and small mammals). Construction-related activities may affect local wildlife by disturbing normal behavioral activities such as foraging, mating, and nesting. Wildlife will usually not forage, mate, or nest in areas where construction-related activities are occurring. These impacts are usually temporary, as wildlife avoid construction areas and recolonize the site when work ends.

Impacts to native species, their habitats, or the natural processes sustaining them would depend on site-specific factors. PSIC-funded projects are expected to have flexibility in the siting of new infrastructure to avoid sensitive and unique habitats, vegetation, and protected wildlife areas. In addition, coordination with applicable agencies to obtain Special Use Permits or other permits determined to be necessary based on the final site locations would occur. Site-specific analysis would be conducted, as necessary, at new sites once the site location is finalized.

Operations-Related Impacts. Routine maintenance activities at transmitting and receiving sites would include mowing around associated site buildings and possibly along access roads. Mowing and pest control in these areas would maintain vegetation in early successional stages of community development and may prevent reestablishment of some plant species. Similarly, operations practices at transmitting and receiving sites may lead to habitat degradation and mortality of some wildlife species (e.g., amphibians and small mammals).

Following the completion of site development, potentially adverse impacts on wildlife species sensitive to disturbance could result from temporary noise generated by climate control (i.e., heating and air conditioning) equipment or backup generators at the project site. This temporary and low level, but recurring, disturbance might exclude wildlife species or promote colonization by tolerant species.

Operations-related activities would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

4.1.5.2.2 Migratory Birds

Construction-Related Impacts. Short- and long-term minor to moderate adverse impacts on migratory birds would be expected as a result of construction-related activities for PSIC-funded transmitting and receiving site projects. Impacts on migratory birds could occur during erection of towers, antennae, and heating, ventilation, and air conditioning (HVAC) equipment (e.g., from use of portable cranes). Construction-related activities occurring along migratory bird pathways would be expected to have more potential for adverse impacts on migratory birds than activities in nonmigratory areas.

PSIC-funded projects are expected to have flexibility in the siting of new infrastructure that would have less impact on sensitive and unique habitats (e.g., requiring cranes be lowered at night during migration periods). In addition, coordination with applicable agencies to obtain Special Use Permits or other permits determined to be necessary based on the final site locations would occur. Site-specific analyses would be conducted, as necessary, at new sites once the site location is finalized.

Construction-related impacts would be expected to have no significant impact on migratory birds as the use of equipment (i.e., cranes) to erect towers, HVAC equipment, and antennae would not be used during migratory periods.

Operations-Related Impacts. Long-term minor to moderate adverse impacts on migratory birds would be expected from tower-related PSIC-funded projects at transmitting and receiving sites. Impacts on migratory birds would be expected as a result of collision with operating towers, antennae, and other tall structures, particularly during periods of low visibility and as a result of tower lighting that might be distracting to some species. The probability of collision is difficult to determine programmatically because of the range of variables that affect the potential for collision and the lack of conclusive data on the causes of collision.

Adverse impacts on birds resulting from collision generally occur during foggy or low cloud conditions at lighted towers supported by guy wires and present greater collision risk than freestanding towers or buildings. Most tall PSIC-funded structures are expected to be freestanding and under 200 feet, will not require aviation warning lights, and are described by Categories 1 through 3, as defined in Section 4.1. Variables such as structure height above surrounding trees, design, lighting, seasons, adjacent land features, and migratory patterns would affect the potential and degree of adverse impacts on migratory birds.

Additional site-specific analysis would be conducted, as appropriate, with the finalization of the proposed site location and before initial planning and design. These NEPA analyses would further evaluate potential impacts on migratory birds on the basis of specific project design and location. Site-specific characterization of potential impacts would be determined for the individual tower locations. EO 13186 requires Federal agencies to consider actions that have, or are likely to have, a measurable negative impact on migratory bird populations and to develop and implement an MOU with the FWS to promote the conservation of migratory bird populations.

Operations-related impacts would be expected to have no significant impact on migratory birds for PSIC-funded projects involving freestanding towers and other structures under 200 feet (Categories 1 through 3) and would not require guy wires or aviation warning lights. Site-specific study would be required for Category 4 and 5 tower projects to accurately assess impacts.

4.1.5.2.3 Threatened and Endangered Species

Construction-Related Impacts. Construction-related activities would affect threatened, endangered, and sensitive species in the same manner that vegetation and wildlife would be affected. The threatened and endangered species that could be affected would depend on the physiographic region in which the PSIC-funded project is planned and the nature and extent of the habitats at the project area and surrounding vicinity. Construction-related activities may potentially adversely affect threatened and endangered species by potentially reducing, altering, or fragmenting available habitat; introducing invasive species; causing injury or mortality to wildlife; noise; and causing behavioral impacts.

PSIC-funded projects are expected to have flexibility in the siting of new infrastructure to avoid sensitive and unique species and associated habitats. In addition, coordination and consultation with FWS and other natural resource agencies might be required by the ESA, State regulations, and other resource-specific regulations and guidelines. A determination of whether the proposed construction-related activities for a project are likely to adversely affect a Federally listed threatened or endangered species would be determined on the basis of correspondence with FWS (or NMFS) on a site-specific basis, once proposed project locations are finalized. The determination of potential adverse impacts on State-listed species would also be determined on a site-specific basis. If it is determined that there is potential for adverse impacts on a

threatened or endangered species, coordination with the FWS or NMFS under Section 7 of the ESA would occur to ensure minimization of any potential adverse impacts.

Overall, construction-related impacts from all five categories of the transmitting and receiving site group would be expected to have no significant impact on threatened and endangered species, as a result of actions taken in accordance with Section 7 of the ESA.

Operations-Related Impacts. Following the completion of site development, operations-related impacts from transmitting and receiving sites are not expected to occur. Should a PSIC-funded project be situated in the vicinity of protected species, potentially adverse impacts to threatened and endangered species sensitive to disturbance could result from temporary noise generated by climate control (i.e., heating and air conditioning) equipment or backup generators at the project site. This temporary and low level, but recurring, disturbance might exclude threatened and endangered species or promote colonization by tolerant species that out-compete threatened and endangered species.

PSIC-funded projects are expected to have flexibility in the siting of new infrastructure to avoid protected species and associated habitats. In addition, coordination and consultation with FWS and other natural resource agencies might be required by the ESA, State regulations, and other resource-specific regulations and guidelines. A determination of whether the proposed project is likely to adversely affect a Federally listed species would be determined on the basis of correspondence with FWS on a site-specific basis, once a proposed project location is finalized. The determination of potential adverse impacts on State-listed species would also be determined on a site-specific basis. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination with the FWS or NMFS under Section 7 of the ESA would be undertaken to ensure minimization of any potential adverse impacts would occur.

Overall, operations-related impacts would be expected to have no significant impact on threatened and endangered species.

4.1.5.2.4 Wetlands

Construction-Related Impacts. Construction-related activities for a PSIC-funded transmitting and receiving project occurring on or near a wetland area would present risk of impact that could be short- or long-term, minor to severe, and cause temporary to permanent damage. Short- and long-term minor to moderate adverse impacts on wetlands would be expected as a result of construction-related activities for PSIC-funded projects under the Preferred Alternative. Construction activities for new or existing infrastructure may result in wetlands disturbance. Potential adverse impacts on wetlands associated with site development from Categories 2 through 5, as defined in Section 4.1, would vary depending on the characteristics of the PSIC-funded project. Consistent with EO 11990, PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance, where possible. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize adverse impacts.

Short- and long-term minor adverse impacts on wetlands occurring in close proximity to a project site could occur if water quality were degraded as a result of erosion, sedimentation, and stormwater runoff from the project site during construction-related activities. Erosion and sediment control and stormwater BMPs would be implemented to minimize potentially adverse impacts on wetlands.

PSIC-funded projects are expected to have flexibility in the siting of new infrastructure to select an area with less impact to wetland habitats. Since the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses would be conducted with the identification of the proposed site location and before initial planning and design. These analyses would further evaluate potential impacts on wetlands on the basis of specific project design and location.

Transmission and receiving site Categories 3 through 5 present the greatest risk of overall, construction-related impacts on wetland habitat. However, with appropriate regulatory oversight and permitting, it is assumed that most impacts to sites near or in the vicinity of wetlands would be avoided or mitigated.

Operations-Related Impacts. Routine maintenance activities on the project site would include mowing and pest control around PSIC-funded infrastructure and possibly along access roads. These practices at transmitting and receiving sites may lead to nearby wetland habitat degradation and injury or mortality of some wetland species (e.g., amphibians and small mammals). Erosion and sediment control and stormwater BMPs would be implemented to minimize potential runoff impacts from routine maintenance activities.

Operations-related impacts would be expected to have no significant impact on wetland habitat, as sites near or in the vicinity of wetlands would be avoided if possible.

4.1.5.3 Biological Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

4.1.5.3.1 Wildlife, Wildlife Habitat, and Vegetation

Construction-Related Impacts. Short- and long-term minor adverse impacts on wildlife, habitats, and vegetation would be expected to be less than those discussed from the Preferred Alternative, because there would be fewer construction activities with heavy equipment, resulting in less land being cleared under this alternative. Potential adverse impacts on vegetation and wildlife associated with site development from Categories 2 through 5, as defined in Section 4.1, would vary depending on the characteristics of the PSIC-funded project. Construction-related activities in an urbanized environment would be expected to have less potential for adverse impacts on native vegetation than activities in rural (naturally vegetated) areas that would generally have more wildlife and habitat present. New infrastructure at undisturbed sites would not be constructed; equipment shelters constructed within existing tower compounds would have relatively small impacts cumulatively.

Construction-related impacts would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

Operations-Related Impacts. Impacts on wildlife, habitats, and vegetation similar to those discussed from the Preferred Alternative would be expected. Operations-related impacts would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

4.1.5.3.2 Migratory Birds

Construction-Related Impacts. Short- and long-term minor to moderate adverse construction-related impacts on migratory birds would be expected, similar to the impacts described under the Preferred Alternative. Coordination with applicable agencies to obtain Special Use Permits or other approvals would be required depending on the site locations. Site-specific analyses would be conducted, as necessary, once the site location is finalized.

Construction-related impacts would be expected to have no significant impact on migratory birds as the use of equipment (i.e., cranes) to erect towers, antennae, and HVAC equipment would not be used during migratory periods.

Operations-Related Impacts. Operations-related impacts on migratory birds similar to those discussed from the Preferred Alternative would be expected, because towers, antennae, and other tall structures would be under 200 feet and would not require guy wires or warning lights.

Adverse impacts on birds resulting from collision generally occur during foggy or low cloud conditions at lighted towers supported by guy wires and present greater collision risk than freestanding towers or other tall structures. Most PSIC-funded towers are expected to be freestanding and not require aviation warning lights, stand under 200 feet, and are described by Categories 1 through 3, as defined in Section 4.1. Variables such as tower height above surrounding trees, design, lighting, seasons, adjacent land features, and migratory patterns would affect the potential and degree of adverse impacts on migratory birds.

Because the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses would be conducted, as appropriate, with the identification of the proposed site location and before initial planning and design. These analyses would further evaluate potential impacts on migratory birds on the basis of specific project design and location. Site-specific characterization of potential impacts would be determined on the basis of the individual tower locations.

Operations-related impacts would be expected to have no significant impact on migratory birds for PSIC-funded projects involving towers under 200 feet (Categories 1 through 3) and would not require guy wires or aviation warning lights. Site-specific study may be required for Category 4 and 5 tower projects to accurately assess impacts.

4.1.5.3.3 Threatened and Endangered Species

Construction-Related Impacts. Construction-related activities would affect threatened, endangered, and sensitive species somewhat less than as described under the Preferred Alternative, because locations with protected species would be avoided, if possible. Because the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses and consultations with Federal and State regulators of threatened and endangered species would be conducted as necessary once the PSIC-funded project sites were finalized and before project implementation.

Overall, construction-related impacts from all five categories of the transmitting and receiving site group would be expected to have no significant impact on threatened and endangered species, as a result of actions taken in accordance with Section 7 of the ESA.

Operations-Related Impacts. Operations-related impacts on threatened and endangered species similar to those discussed from the Preferred Alternative would be expected, because locations with protected species would be avoided, if possible. Operations-related impacts would be expected to have no significant impact on threatened and endangered species.

4.1.5.3.4 Wetlands

Construction-Related Impacts. Short- and long-term minor adverse construction-related impacts on wetland habitat would be somewhat less than those of the Preferred Alternative, because construction will only take place on previously disturbed sites. Short- and long-term minor to moderate adverse impacts on wetlands would be expected as a result of construction-related activities for PSIC-funded projects under the Preferred Alternative. Construction activities for new or existing infrastructure may result in wetlands disturbance. Potential adverse impacts on wetlands associated with site development from Categories 2 through 5, as defined in Section 4.1, would vary depending on the characteristics of the PSIC-funded project. Since the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses would be conducted, as appropriate, with the finalization of the proposed

site location and before initial planning and design. These analyses would further evaluate potential impacts on wetlands on the basis of specific project design and location.

Overall, construction-related impacts would be expected to have no significant impact on wetland habitat, because sites near or in the vicinity of wetlands would be avoided if possible.

Operations-Related Impacts. Operations-related impacts on wetlands similar to those discussed from the Preferred Alternative would be expected, because sites near or in the vicinity of wetlands would be avoided if possible. Operations-related impacts would be expected to have no significant impact on wetland habitat.

4.1.5.4 Biological Resources Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, PSIC-funded projects would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. No significant impacts on vegetation and wildlife, migratory birds, threatened and endangered species, or wetlands would occur under the No Action Alternative, including beneficial impacts of replacement of old guyed transmitting and receiving towers with modern freestanding towers.

4.1.6 Historic and Cultural Resources

Impacts to historic and cultural resources can occur both from physical disturbance of historic properties and from aesthetic changes to a historic property or its viewshed. To determine the nature of impacts to historic properties, as defined under the NHPA, consultation with the relevant State or Territory SHPO, or THPO, may be required.

4.1.6.1 Significance Criteria

Impacts on historic and cultural resources have been evaluated using the following criteria:

No Impact. Impacts to any NRHP eligible or listed properties, or TCPs, would not occur, or such conditions are not present.
No Significant Impact, The historic characteristics or setting of an NRHP eligible or listed property are altered or have the potential to be altered, but the resource retains its integrity (equates to *no adverse effect* under Section 106). The traditional, cultural, or religious significance to Native peoples of a TCP will not be compromised or diminished.
Significant Impact. The integrity of an NRHP eligible or listed property would be diminished or destroyed (equates to *adverse effect* under Section 106). The traditional, cultural, or religious significance of a TCP to Native peoples would be destroyed.

4.1.6.2 Historic and Cultural Resources Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. Construction-related impacts to historic and cultural resources at and near PSIC-funded transmitting and receiving sites could cause temporary impacts to viewsheds and present risk of permanent impact or harm to historic properties or TCPs, primarily through ground-disturbing activities.

Construction for transmitting and receiving infrastructure, such as that required for Categories 3 through 5, typically requires both grading and excavation, and access roads and staging areas may also be required. Underground installation of utility connections for equipment associated with transmitting and receiving sites would require ground-disturbing activities such as trenching. These activities may disturb recorded and unrecorded archaeological resources at the proposed project site.

If archaeological resources present at the proposed project site have been previously disturbed, the impacts from construction are not expected to be significant. However, if a PSIC-funded

project at any site results in the permanent removal, degradation, or disturbance of archaeological resources, this may constitute a significant adverse impact to the resources. When project sites have been finalized, a site-specific examination may be required to determine the nature and extent of potential impacts to historic and cultural resources. Consultation with the appropriate SHPO/THPO may be required, unless previously recorded archaeological surveys have indicated that historic and cultural resources are not present at the site. Those projects that would not involve any ground disturbance would no direct impacts to archaeological resources.

Installation of towers, antennae, microwave links, and associated infrastructure may generate short-term and long-term indirect impacts to architectural resources, if the construction site is within the viewshed of any historic and cultural resources. External modification of historic structures, through the installation of antennae and other equipment, may also negatively affect architectural resources. The construction of new or renovated towers, transmitting and receiving equipment to be mounted on towers, or construction equipment may indirectly impact the viewshed of architectural resources in the area if not aesthetically compatible with the character of the historic surroundings. Because of the expected small scale and relatively low height of the external equipment expected to be used, however, impacts are not expected to be significant, although consultation with the SHPO/THPO as part of a site-specific assessment could be necessary, and mitigation measures may be required.

The construction of towers and other infrastructure presents the greatest risks to historic and cultural resources, through potential destruction or severe degradation of a TCP during the excavation or construction process. Indirect impacts could result from an infringement on the viewshed of a TCP or an action that restricts access to a TCP, such as crane operation that would make the site inaccessible for reasons of public safety. These site-specific impacts may be assessed through consultation with the SHPO/THPO once a project site has been finalized. Separate follow-on studies would likely be required to determine whether impacts would be significant, unless a previously recorded survey were to indicate that there were no TCPs in the APE.[11]

There would be no construction-related impacts to archaeological resources from projects that do not require ground disturbance. For those projects requiring disturbance of previously disturbed ground (Categories 1 and 2), impacts would not be significant. Projects requiring ground disturbance on previously undisturbed ground would require consultation with the SHPO/THPO to determine impacts.

There would be no construction-related impacts to architectural resources from projects sited outside the APE of historic properties or TCPs. If it is not known whether a proposed project site is within the APE of a historic property or TCP, then consultation with the SHPO/THPO would be required to determine the level of impact.

Operations-Related Impacts. Operation of a transmitting and receiving site does not typically require any ground-disturbing activities; therefore, it is expected that there would be no impact to archaeological resources.

The design of new or renovated towers and the appearance of transmitting and receiving equipment mounted on towers may indirectly impact the viewshed of architectural resources in the area if not aesthetically compatible with the character of the historic surroundings. Because of the expected small scale of the external equipment expected to be used, however, impacts

[11] The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR 800.16(d)).

are not expected to be significant, although consultation with the SHPO/THPO as part of a site-specific assessment could be necessary, and mitigation measures may be required.

Operations of transmitting and receiving projects could potentially have long-term significant impacts to TCPs, if the location of the site in any way restricts access to or degrades the integrity of a TCP. Once site selection is finalized, a site-specific assessment, in addition to consultation with the appropriate THPO, would determine the nature and extent of impacts to TCPs as a result of the project.

If impacts to any cultural resource type are found to be significant as a result of operations-related impacts under the Preferred Alternative, then the consultation process may be required to identify mitigation measures that would reduce the impacts below the level of significance. Mitigation measures commonly used to bring construction-related impacts to historic and cultural resources below the level of significance include the selection of an alternate site layout, the use of compatible colors or an alternative style of fixture, or a change of location.

4.1.6.3 Historic and Cultural Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. Impacts to archaeological resources as the result of construction under Alternative 2 would be expected to be less than those discussed from the Preferred Alternative, because only previously disturbed sites would be used (Categories 1 and 2).

Impacts to architectural resources and TCPs resulting from construction would be expected to be the same as those discussed from the Preferred Alternative, with temporary impacts resulting from the use of cranes and other construction equipment and from the potential for a construction site to restrict access to a TCP. Once site selection is finalized, a site-specific follow-on analysis may be required and consultation with the appropriate SHPO or THPO.

Operations-Related Impacts. Impacts to archaeological resources, architectural resources, and TCPs from the operation of Alternative 2 would be the same as those for the Preferred Alternative, because the activities required to operate transmitting and receiving sites are the same under each alternative. There would be no impact to archaeological resources, and consultation with the SHPO/THPO may be required to determine impacts to architectural resources and TCPs.

4.1.6.4 Historic and Cultural Resources Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no construction or renovation of transmitting and receiving projects. Therefore, there would be no impact to historic and cultural resources resulting from the No Action Alternative.

4.1.7 Aesthetic and Visual Resources

The PSIC-funded projects for transmitting and receiving sites could be located within a variety of settings, including commercial or residential areas (i.e., urban, suburban, or rural). Potential impacts on aesthetic and visual resources are likely to be greater in more natural (rural) settings than commercial or residential settings (urban and suburban) where development is more common. Impacts on aesthetic and visual resources may be short- or long-term, depending on whether the impact is related to construction activities or the feature that is being constructed.

Impacts to aesthetic and visual resources have been evaluated using the following criteria:

No Impact. Impacts to the viewshed of any historic resources or the aesthetic character of the surrounding area would not occur, or such conditions are not present.

No Significant Impact. No permanent direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action would be expected. Any visual disturbances that alter the character of the viewshed or aesthetic character of the surrounding area would be temporary, and the area would be returned to its original state following the action.
Significant Impact. Direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action are anticipated, and these effects would be greater in number, extent, or duration than nonsignificant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.1.7.1 Aesthetic and Visual Resources Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. Under the Preferred Alternative, potential sources of impacts on aesthetics and visual resources from construction-related activities could include the clearing and grading of land, the construction of infrastructure necessary to operate the transmitting and receiving sites, and the construction or renovation of the specific sites' facilities. The degree of visual disturbance would depend on the existing landscape, project-specific construction activities, and each viewer's perception. The PSIC-funded projects may have flexibility in the siting of new infrastructure and would seek to avoid or minimize impacts on aesthetic and visual resources by selecting existing sites with existing road and utility corridors, where possible. The short-term impacts on aesthetic and visual resources resulting from construction-related activities would likely have no significant impact.

Operations-Related Impacts. Features that might create a permanent contrast with the existing environment would include communications towers and buildings associated with the transmitting and receiving sites. If overhead transmission lines (instead of buried lines) were used for power or communication, these lines would also represent a permanent feature. However, the degree of contrast would depend on the existing landscape and each viewer's perception. The PSIC-funded projects may have some flexibility in the siting of new infrastructure and would seek to avoid or minimize impacts on aesthetic and visual resources by selecting existing sites with existing road and utility corridors, where possible. The long-term impacts resulting from the permanent placement of transmitting and receiving sites would likely have no significant impact.

4.1.7.2 Aesthetic and Visual Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. Construction-related impacts to aesthetics and visual resources for Alternative 2 would be similar to those discussed from the Preferred Alternative but to a lesser degree, because utilizing only existing sites would reduce the total amount of construction and ground-disturbing activities and siting of new infrastructure. There would be no significant impact to aesthetics and visual resources resulting from construction activities under Alternative 2.

Operations-Related Impacts. Operations-related aesthetics and visual resources impacts for Alternative 2 would be similar to those discussed for Preferred Alternative and would not be significant.

4.1.7.3 Aesthetic and Visual Resources Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no construction or renovation of transmitting and receiving projects. There would be no impact to aesthetic or visual resources resulting from the No Action Alternative.

4.1.8 Land Use

Impacts to land use can occur when incompatible land uses are placed adjacent to one another. PSIC-funded transmitting and receiving projects would not be compatible with all land use types and should be carefully sited, in accordance with local master plans, planning initiatives, local zoning, and coastal land use restrictions. Transmitting and receiving sites are most compatible with industrial, commercial, or public and quasi-public land uses, such as utilities, because of the basic intended function of these sites and the associated activities by which their operation is characterized. Compatibility with land use planning is derived from the function or purpose (i.e., operation) of the site; construction activities do not have any substantive bearing on impacts to land use planning. Therefore, only impacts from operations will be discussed in this section.

4.1.8.1 Significance Criteria

Impacts to land use have been evaluated using the following criteria:

No Impact. Impacts to existing land use patterns would not occur.
No Significant Impact. Impacts to land use would be measurable or perceptible but would be limited to a relatively small change in land use that is still compatible with surrounding or planned land uses. The alternatives to implement the Proposed Action would be consistent with respective State CZMPs and would not affect coastal barrier resources.
Significant Impact. Impacts to land use would be substantial. Surrounding land uses are expected to substantially change in the short and long term. The alternatives to implement the Proposed Action would not be consistent with either the surrounding land use or State CZMPs or would impact coastal barrier resources.

4.1.8.2 Land Use Impacts, Preferred Alternative, Transmitting and Receiving Sites

4.1.8.2.1 General Land Use Compatibility

Transmitting and receiving sites would not be compatible with all types of land uses, and impacts would need to be evaluated at a site-specific level to identify their significance. In general it is expected that siting of PSIC-funded transmitting and receiving sites would be compatible with existing land use plans and zoning at and adjacent to the proposed site and would not impose an incompatible land use on an area. Commercial, industrial, and some public and quasi-public facilities, such as airports and utilities, would be compatible, because infrastructure and activities are similar to those associated with transmitting and receiving sites. Furthermore, safety hazards among activities in these areas are similarly controlled. This type of compatible development would not have any impact on land use.

Impacts to other land use types—such as low-, medium-, and high-density residential development, agricultural land, and open space—could range from minor, long-term adverse impacts to significant long-term adverse impacts. The nature of impacts and their severity would be assessed at the site level by regional and local authorities. Grantees would adhere to local zoning laws and land use plans to minimize impacts to land use.

4.1.8.2.2 Coastal Zone

PSIC-funded grant projects proposed in a coastal zone area would be required to ensure that any new transmitting and receiving sites would be developed in a manner consistent with the relevant State's approved CZMP. Impacts to the coastal zone would be determined through a

site-specific study with the State consistency determination for those projects to which the requirement applies.

4.1.8.2.3 Coastal Barriers

PSIC-funded grant projects proposed in the CBRS, as defined in the CBRA and described in Section 3.8.1, may be required to engage in consultation with FWS to determine what impacts, if any, would be likely and what mitigation may be required. Impacts to coastal barriers would be determined through a site-specific study with FWS consultation for those projects to which the requirement applies.

4.1.8.3 Land Use Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

4.1.8.3.1 General Land Use Compatibility

Impacts to general land use compatibility under Alternative 2 would be similar to those expected under the Preferred Alternative, although the inclusion of only those sites that have been previously disturbed will reduce the potential for incompatible uses. Land use impacts resulting from transmitting and receiving projects are inherently site-specific in nature and should be assessed in a site-specific analysis.

4.1.8.3.2 Coastal Zone

Impacts to the coastal zone under Alternative 2 would either be the same as, or somewhat less than, those expected under the Preferred Alternative, because only previously disturbed sites would be developed. Under the CZMA, prior ground-disturbing activities would have been subject to a State CZMP consistency review, and no new development would be taking place in the coastal zone.

4.1.8.3.3 Coastal Barriers

Impacts to coastal barriers under Alternative 2 would either be the same as, or somewhat less than, those expected under the Preferred Alternative, because only previously disturbed sites would be developed. Prior undertakings requiring ground-disturbing activities within the CBRS would have been subject to consultation requirements and development restrictions. The exclusive use of previously disturbed sites would ensure no new development in the CBRS.

4.1.8.4 Land Use Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded transmitting and receiving site projects would be implemented, and no functions or activities associated with these sites would occur. Therefore, there would be no impacts to general land use compatibility, the coastal zone, or coastal barrier resources resulting from the No Action Alternative.

4.1.9 Infrastructure

Impacts to infrastructure are typically observed as disruptions in service and utilities, either short- or long-term, resulting from increases in demand that may overwhelm the capacity of the local area to absorb them. Engagement in a planning process to ensure that system capacity will be able to meet projected increases in demand is the most effective way to avoid impacts to infrastructure, although resources may not always be available to implement upgrades.

4.1.9.1 Significance Criteria

Impacts to utilities have been evaluated using the following criteria:

No Impact. Impacts to the human or natural environment would not occur, or such conditions are not present.
No Significant Impact. An impact to the human or natural environment would occur but is less than thresholds indicated below for “significant impact.”
Significant Impact.

- **Electricity.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require energy in quantities that would exceed local or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy.
- **Communications.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require communication systems to meet requirements that could not be provided without major modifications to the existing systems.
- **Potable Water.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more potable water than could be reliably provided by available potable water sources, leading to shortages, or if regulatory limitations on withdrawals would potentially be exceeded.
- **Natural Gas.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more natural gas than could be reasonably provided by the existing system, leading to shortages.
- **Wastewater.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more wastewater treatment capacity than could be reliably provided by the existing wastewater treatment system, potentially leading to the discharge of effluents in excess of standards. Major shortfalls in collection capacity could also be potentially significant.

Impacts on solid waste collection and disposal have been evaluated using the following criteria:

No Impact. The alternatives to implement the Proposed Action do not affect the human or natural environment.
No Significant Impact. An effect to the human or natural environment would occur, but it is less than thresholds, indicated below, for "significant impact."
Significant Impact. Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require collection or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

Impacts on the transportation network have been evaluated using the following criteria:

No Impact. No alterations of traffic patterns and trends would occur; no additional demand would be placed on the existing transportation network.
No Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would be within the network's capacity and could be absorbed without creating disruption. Traffic patterns and trends would not undergo changes that would affect service.
Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would exceed the network's capacity, creating disruptions in service in roadways, rail, or air transportation.

4.1.9.2 Infrastructure Impacts, Preferred Alternative, Transmitting and Receiving Sites

4.1.9.2.1 Utilities

Construction-Related Impacts. Short-term minor impacts on utility quality and availability would be anticipated for developed areas. In the unlikely event that construction or maintenance activities result in actual damage to a utility system or interruption of services resulting from installation of a transmitting and receiving site, a short-term significant impact may occur. For rural areas and projects involving new construction or extensive renovations, more extensive construction-related activities could require additional short-term electric and communication services from available utility networks. Undeveloped areas may require construction-related

activities to connect to utility services, since utilities may not exist or may be too far from a project site. Construction-related impacts are not expected to lead to major shortages in supply, nor are they expected to require major changes to the system. Impacts to utilities would not be significant.

During construction-related activities, precautions would be taken to avoid damage to existing utility lines. All potential modifications to utility services would be evaluated as part of site-specific investigations. Coordination with potentially affected local and regional utility service providers should occur to avoid unnecessary damage or interruption of service.

Operations-Related Impacts. Depending on the PSIC project, operation of transmitting and receiving sites would not be expected to cause noticeable impacts to local utility services across all category types. Operations impacts are not expected to lead to major shortages in supply, nor are they expected to require major changes to the services. There would be no significant impact to utility services from operations-related activities.

4.1.9.2.2 Solid Waste

Construction-Related Impacts. Short-term minor impacts would be expected during construction-related activities, since some amount of waste requiring disposal would be generated. Solid waste that could be generated from construction activities includes building materials (i.e., solid pieces of concrete, metal piping and wiring, and lumber). Where possible, construction and demolition materials would be recycled, thereby diverting the waste from landfills. There would be no significant impact to solid waste from construction-related activities.

Operations-Related Impacts. Normal operation of transmitting and receiving sites would be unlikely to require solid waste collection and disposal services. The amount of waste generated during normal operations would not cause a significant impact on local or regional solid waste management resources. There would be no significant impact to solid waste from operations-related activities.

4.1.9.2.3 Transportation Network

Construction-Related Impacts. For transmitting and receiving site projects requiring construction-related activities, the heavy equipment and materials that may be needed for site access, site preparation, and construction would be typical of construction projects and would not pose unique transportation network considerations. Construction projects may require numerous truck trips to haul materials to a project site or to dispose of waste materials. The number of construction-related trips and the frequency and duration of impacts would be dependent on the location, nature, and scale of the project. During the construction period, the movement of heavy equipment and materials to a project site during construction may cause a relatively short-term increase in the level of service along local roadways.

If construction-related activities were to occur adjacent to roadways, disruption of traffic on these roads could occur. Delays or detours may be necessary, depending on the project's nature and location. The degree of impact depends, in part, on the current level of service on potentially affected roads (i.e., roads at or above capacity would be more heavily affected than roads that are substantially below capacity). Shipments of construction-related materials (i.e., gravel, concrete, and water) would not be expected to significantly affect local primary and secondary road networks.

Potential impacts to transportation are expected to be low, provided appropriate planning and implementation actions are taken. Existing roads should be used to the maximum extent possible. There would be no significant impact to transportation networks from construction-related activities.

Operations-Related Impacts. Depending on the PSIC project, transportation activities would likely be limited to a small number of daily trips by medium-duty vehicles or personal vehicles. Transportation activities during operations would not be expected to cause noticeable impacts to local transportation networks. There would be no significant impact to transportation networks from operations-related activities.

4.1.9.3 Infrastructure Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

4.1.9.3.1 Utilities

Impacts on utilities as discussed for those under the Preferred Alternative would be expected for this alternative. Short-term minor impacts on utility quality and availability would be anticipated for PSIC-funded projects on previously undisturbed sites. Impacts to utilities from both construction and operations would not cause major disruptions in service, nor would they require major upgrades to the overall utility system. Impacts are not expected to be significant.

4.1.9.3.2 Solid Waste

Impacts on solid waste as discussed for those under the Preferred Alternative would be expected, and there would be no significant increase to local or regional solid waste resources from either construction or operations. There would be no significant impact to solid waste as a result of Alternative 2.

4.1.9.3.3 Transportation Network

Impacts on transportation networks similar to those discussed from the Preferred Alternative would be expected. Existing transportation networks would already be in place, and little to no new access roads would be required. There would be no significant impact to transportation networks from either construction or operations under Alternative 2.

4.1.9.4 Infrastructure Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no construction or renovation of transmitting and receiving projects. There would be no impact to utilities, solid waste, or the transportation network resulting from the No Action Alternative.

4.1.10 Socioeconomic Resources

Impacts to socioeconomic resources are assessed in terms of the effects of expenditures on the overall local economy and the impact of in-migration on demographics, employment, the availability of housing, and the ability of a jurisdiction to provide services such as education and public safety. In addition, disproportionate impacts to low-income or minority populations would result in adverse environmental justice impacts. Total proposed PSIC funding for all project types is examined. Since incremental spending associated with each project type would likely be less than spending associated with the entire program, impacts may vary slightly but are therefore likely to be less than those presented in this analysis. The impact of total expenditures on socioeconomic resources will not be broken down into construction- and operations-related impacts but will instead be evaluated in terms of overall impact to the socioeconomic environment. The reason for this is that total spending would be the primary driver of all socioeconomic impacts, regardless of primary allocation.

4.1.10.1 Significance Criteria

Impacts on socioeconomic resources have been evaluated using the following criteria:

No Impact. Impacts to demographics, employment, housing, or services would not occur. No effects on low-income or minority populations would occur.

No Significant Impact. There would be some measurable changes to demographics, employment, or the demand for housing or services, but they would not impact the availability of

jobs, housing, or services. There would be no disproportionate effects to low-income or minority populations.

Significant Impact. There would be measurable changes to demographics, employment, or the demand for housing or services that would impact the availability of jobs, housing, or services. There would be disproportionate impacts to low-income or minority populations.

4.1.10.2 Socioeconomic Resources Impacts, Preferred Alternative, Transmitting and Receiving Sites

Under the Preferred Alternative, expenditures associated with the implementation of PSIC-funded grant programs would represent a small portion of overall Statewide spending and a small portion of the Statewide economy. Total PSIC funding for all projects and investments in the State of California—the State with the largest population and which would receive the most funding under the program—would be approximately $94 million. California's contribution to gross domestic product (GDP) in 2007 was approximately $1.8 trillion (BEA, 2008); therefore spending resulting from PSIC-funded projects would constitute 0.00005 percent of the total State economy and would not have a significant impact on economic development.

Total PSIC-funding for American Samoa—the Territory with the smallest population and the Territory that would receive the least funding under the PSIC grant program—would be approximately $691,948. The GDP for American Samoa in 2003 was estimated at $510 million (CIA, 2008). Although PSIC-related spending would represent a larger contribution to the Territory economy in American Samoa than PSIC-related funding to the California State economy, it would still only constitute 0.001 percent of the total economy, and impacts to economic development would not be significant.

The implementation of PSIC-funded projects may result in an increase in jobs as a result of the construction of transmitting and receiving sites, but the increase is not expected to be significant in any State, Territory, or the District of Columbia.

Although increases in employment would be expected as a result of the implementation of PSIC-funded projects, increases are not expected to be significant. There would, therefore, be no expected in-migration and therefore no impacts expected to demographics, the supply of housing, or the ability of States, Territories, or other local entities to provide public services.

The potential for impacts on minority and low-income populations would be based on the evaluation of specific site characteristics. Unless transmitting and receiving sites would be disproportionately proposed for low-income or minority areas, as these areas are defined in Section 3.10.1, no significant impacts to environmental justice would be expected.

4.1.10.3 Socioeconomic Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Impacts to socioeconomic resources would be the same under Alternative 2 as under the Preferred Alternative, since total expenditures are not expected to change. Impacts to environmental justice would be based on site-specific characteristics but are not expected to be significant.

4.1.10.4 Socioeconomic Resources Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded transmitting and receiving site projects would be implemented, and no PSIC-related spending would take place. Under this alternative, there would be no increase in economic activity and job creation related to implementation of the program. Therefore, there would be no PSIC-related impacts to demographics, the availability of housing, the availability of services, or environmental justice.

4.1.11 Human Health and Safety

Impacts to human health and safety can come from a wide range of activities. Workplace and construction site safety can adversely impact health and safety, as well as the generation, handling, storage, use, or disposal of hazardous or toxic materials. This analysis addresses these impacts qualitatively on a site-specific basis.

4.1.11.1 Significance Criteria

Impacts on human health and safety have been evaluated using the following criteria:

No Impact. Increases would not occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of. There would be no increase in workplace safety hazards.

No Significant Impact. Hazardous or toxic materials or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no increase in workplace safety hazards.

Significant Impact. A net increase would occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity and probable regulatory violations. Site contamination conditions could preclude development of sites for the proposed use. Workplace hazards, such as on-the-job injuries, could increase.

4.1.11.2 Human Health and Safety Impacts, Preferred Alternative, Transmitting and Receiving Sites

Construction-Related Impacts. Under the Preferred Alternative, there would be a slight increase in workplace safety hazards during the construction phase of PSIC-funded transmitting and receiving site projects because of the nature of construction work and the increased intensity of work at the proposed project sites. The impact of this increase would not be significant. Work areas surrounding construction activities would be fenced, and appropriate signs would be posted to further minimize safety risks. In addition, implementation of worker safety rules, derived from OSHA safety and health standards, will establish a uniform set of safety practices and procedures to protect workers. Demolition of, or renovations to, older transmitting and receiving sites could result in exposure to polychlorinated biphenyls (PCB) and other hazardous materials regulated under TSCA. These materials would need to be handled and disposed of in accordance with applicable Federal, State, and local regulations. Construction-related impacts to human health and safety impacts would not be significant.

Operations-Related Impacts. Under the Preferred Alternative, fuels needed to power backup generators would have to be stored on site in above-ground or vaulted tanks, to minimize the risk of soil contamination in the event of a leak. BMPs for the handling, storage, use, and disposal of fuels such as diesel would include regularly monitoring and inspecting tanks for leaks. Depending on the size of the storage tank, a spill prevention, contingency, and countermeasure (SPCC) plan may need to be developed.

Radiation exposure and risk of electrocution to humans from equipment typically used would be extremely low and below harmful levels (USCG, 2006; FCCOET, 1999). The site would be fenced, and access would be restricted to authorized personnel to minimize risks to human health and safety. There would be no significant adverse impacts to human health and safety resulting from operation of transmitting and receiving sites under the Preferred Alternative.

The implementation of PSIC-funded transmitting and receiving site projects would enable public safety agencies to improve interoperable communications and communicate more effectively in an emergency or crisis situation. This would result in an operations-related beneficial impact to human health and safety.

4.1.11.3 Human Health and Safety Impacts, Alternative 2 (Previously Disturbed Sites Only), Transmitting and Receiving Sites

Construction-Related Impacts. Impacts to human health and safety resulting from construction would potentially be more significant under Alternative 2 than those expected under the Preferred Alternative. The exclusive use of previously disturbed sites may increase the likelihood of discovering possible site contamination from previous development and use. All other construction procedures and safety protocols are expected to remain the same, regardless of construction site type.

Operations-Related Impacts. Impacts to human health and safety resulting from operations could be more adverse under Alternative 2 than those expected under the Preferred Alternative; the use of a previously disturbed site could present possible site contamination issues that may have associated requirements for ongoing operations such as monitoring and sampling. Furthermore, proposed project sites are selected on the basis of their ability to effectively increase signal propagation. A requirement to use alternative sites may reduce the ability to achieve this objective, resulting in adverse impacts to human health and safety. These impacts are not expected to be significant.

4.1.11.4 Human Health and Safety Impacts, No Action Alternative, Transmitting and Receiving Sites

Under the No Action Alternative, no PSIC-funded renovations to, or new construction of, transmitting and receiving site projects would be implemented. Current interoperability gaps would continue, compromising the ability of first responders to respond effectively and rapidly to emergency situations. There would be adverse impacts to human health and safety as a result of the No Action Alternative.

4.2 ENVIRONMENTAL CONSEQUENCES—OPERATIONS AND RESPONSE CENTERS

The implementation of the Proposed Action or one of its alternatives has the potential to impact environmental resources throughout the 50 States, 5 Territories, and the District of Columbia. This section identifies and evaluates the environmental impacts associated with the alternatives to implement the operations and response centers project types.

Operations and response centers are intended to house a variety of first-responder activities on a daily basis, such as 911 dispatch operations, and to serve as emergency operations centers in the event of a disaster. In these events, the center would serve as the coordination point for the activities of multiple first-responder entities, such as police, fire and rescue services, and disaster response organizations such as the Red Cross, National Guard, and other Federal, State, and local agencies. To perform these functions effectively, centers must be able to meet the functional needs of the agencies and services that would use them during normal operations and emergency situations. For many PSIC-funded projects, this is proposed to be accomplished primarily through the renovation and expansion of existing centers. This will provide increased response, coordination, and management capacity through technological upgrades and additional space to house these functions. Upgrades and retrofits of existing response centers and new response centers involving less than 1 acre of ground-disturbing activity are not expected to require site-specific EAs.

4.2.1 Noise

4.2.1.1 Significance Criteria

Impacts to noise have been evaluated using the following criteria:

No Impact. Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.

No Significant Impact. Noise levels resulting from alternatives to implement the Proposed Action would exceed natural sounds, as described under no impact, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature.
Significant Impact. Noise levels would exceed typical noise levels from construction equipment and generators permanently or for a prolonged period of time.

4.2.1.2 Noise Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Construction noise varies depending on the construction type, where the construction would occur, and the distance of noise receptors from the source. Relative increases in noise as a result of the use of construction equipment would vary significantly, depending on the type of equipment used, operations schedule, and condition of the project area. Noise from various types of construction activities were estimated in Table 3-1.

Under the Preferred Alternative, PSIC-funded operations and response center projects that would involve only internal renovations and not require any external demolition, construction, or heavy construction equipment would have no impacts on ambient noise levels. Construction noise would be generally contained within the building for projects of this nature.

PSIC-funded operations and response center projects that would involve external construction are expected to consist of renovations or expansion of existing centers. Any construction-related activities would result in a temporary increase in the noise generated. Construction activities for new or existing infrastructure may result in short-term, negligible adverse impacts.

Construction activities may result in short-term minor adverse impacts on the noise environment, especially if noise-sensitive populations are adjacent to a proposed site. Typically, construction-related noise would last only for the duration of construction activities and occur during normal working hours (i.e., 7:00 a.m. to 5:00 p.m.), when noise is tolerated better because of the masking effect of background noise. Construction equipment would be shut off when not in use. Noise impacts are not expected to exceed typical noise levels and would be short-term in nature. Therefore, it is anticipated that construction-related noise impacts from the Preferred Alternative would not be significant.

Operations-Related Impacts. Implementation of the Preferred Alternative would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. As identified in Section 3.1.2, backup generators provide emergency electric power for some PSIC-funded projects. Electric generators at operation and response centers would be powered by either diesel or spark ignition engines using either propane or natural gas. Noise from backup generators is primarily composed of engine and exhaust noise. Temporary noise could be also generated by climate control (i.e., heating and air conditioning) equipment at the project site. Figure 4-1 depicts the noise levels for a typical 125 kW generator by fuel type, and Figure 4-2 provides the noise levels by generator size. Noise levels increase with the size of the generator.

Backup generators at operations and response centers would not be expected to increase ambient noise levels, because of limited occasional operation only as a backup to primary power equipment during its maintenance and testing and during interruption of the primary (grid) power supply. At a national programmatic level, it is estimated that the total operation of backup generators at operations and response centers would be conservatively estimated at 12 to 16 hours per year.

In some instances, a PSIC-funded operations and response center upgrade may require the replacement of an older, and likely louder, generator with a more efficient, quieter model. Thus, a decrease in ambient noise levels could be realized.

Because of the occasional and intermittent operation of backup generators, the Preferred Alternative is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. Noise impacts are not expected to exceed typical noise levels and would be short-term in nature. No significant long-term impacts to the average ambient noise level will occur.

4.2.1.3 Noise Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Alternative 2 would allow renovations or expansions of current centers within existing buildings only on previously disturbed sites. The levels of unavoidable, short-term noise associated with both internal and external construction-related activities would be less adverse than the levels discussed for the Preferred Alternative above. Any potentially significant impacts from noise generated during construction activities would be prevented by limiting construction to normal working hours and shutting off equipment when it is not in use. Therefore, it is anticipated that short-term negligible adverse impacts would be expected from construction activities associated with Alternative 2. Correspondingly, construction-related noise impacts would not be significant.

Operations-Related Impacts. Backup generator operations would be similar to those described for the Preferred Alternative. Alternative 2 would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. As described in Section 4.2.1.2, backup generators are included to provide emergency electric power. Temporary noise also could be generated by climate control (i.e., heating and air conditioning) equipment at the project site.

In some instances, a PSIC-funded project may require the replacement of an older (louder) generator with a more efficient (quieter) model. Thus, a decrease in ambient noise levels could be realized.

Because of the occasional and intermittent operation of backup generators, Alternative 2 is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. No significant long-term impacts to the average ambient noise level would occur from Alternative 2.

4.2.1.4 Noise Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, construction, upgrades, renovations, or expansions to PSIC-funded operations and response centers would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. No adverse impacts on the ambient noise environment would occur under the No Action Alternative.

4.2.2 Air Quality

4.2.2.1 Significance Criteria

Impacts to air quality have been evaluated using the following criteria:

No Impact. Impacts to air quality would not occur as a result of the action.
No Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas are less than exceedance levels, as defined in Table 3-3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Projects are *de minimis* or conform to SIP in nonattainment and maintenance areas.
Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas would be greater than the exceedance levels. Emissions in attainment areas would cause an area to

be out of attainment for any NAAQS. Projects do not conform to SIP in nonattainment and maintenance areas.

4.2.2.2 Air Quality Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Under the Preferred Alternative, some PSIC-funded operations and response center projects would involve only internal renovations and not require any external demolition or construction or use of heavy construction equipment, and therefore would have no significant impacts to air quality.

Air quality impacts resulting from external construction and renovation activities would originate primarily from emissions of construction vehicles and equipment and from fugitive dust created during ground-disturbing activities. Both would be temporary and of limited duration. Air quality impacts from construction activities would vary depending on the type of construction, where the construction would occur, and the distance of receptors from the source. An NSR permit may be required, depending on the AQMD in which the proposed project would be located. Furthermore, for those proposed projects in nonattainment or maintenance areas, a conformity determination may be required.

The use of heavy equipment during construction activities may result in short-term minor adverse impacts on air quality in and near the proposed site. Typically, construction-related air quality impacts would last only for the duration of construction activities and occur during normal working hours (i.e., 7:00 a.m. to 5:00 p.m.). Therefore, it is anticipated that short-term negligible adverse impacts would be expected as a result of the construction activities. There will be no significant impact to air quality from construction activities.

The minor emissions from construction-related activities can be further reduced or mitigated through the use of BMPs. BMPs for dust control include spraying water to control dust, limiting the area of uncovered soil for each activity, siting staging areas to minimize fugitive dust, using a soil stabilizer (chemical dust suppressor), mulching, using temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks hauling dirt. BMPs for construction vehicle and equipment emissions include limiting vehicle idling time, using low or ultra-low sulfur fuel (including biodiesel), proper maintenance, and using electric- instead of gas-powered tools. Use of locally available products and materials would also reduce transportation-related emissions.

Given the relatively small size of PSIC operations and response center sites, including those with ground disturbance of 1 acre or more, even construction of a completely new facility is unlikely to result in any exceedance of air quality standards, regulated release of HAPs, or result in more than *de minimis* increases in emissions.

There will be no significant impact to air quality from construction activities.

Operations-Related Impacts. Implementation of the Preferred Alternative would not result in the long-term operation of significant emission-generating sources, nor would it significantly increase or alter the existing levels of ambient air quality levels. As identified in Section 3.1.2, backup generators may be components of PSIC-funded projects to provide electrical power during an emergency. An NSR permit may be required, depending on the AQMD in which the proposed project would be located. Furthermore, for those proposed projects in nonattainment or maintenance areas, a conformity determination may be required.

Existing backup generators do not have to meet any emissions standards; their only requirement states that they must be operated according to the generator manufacturer's maintenance and operating instructions to help minimize emissions (40 CFR §§89 and 90). New backup generators must be certified to meet the Nonroad Standards set by EPA (40 CFR §§89 and 90) for nonroad engines. (Manufacturers build and certify the generators to these standards

and have various models ready to purchase.) Backup generators may only operate during an emergency ("lights out") or for testing or maintenance being performed on the generator. Federal regulations limit the use of backup generators to 500 hours per year. Individual States or air quality control boards may have established a lower limit.

To the degree that older generators are replaced with new generators, the implementation of PSIC-funded projects could result in emissions reductions. The use of backup generators is not expected to result in increases in criteria air pollutants greater than exceedance levels, as defined in Table 3-3, because of their limited operation as a source of power. Therefore, it is not anticipated that adverse long-term impacts on the ambient air quality level would occur.

Air quality impacts from backup generators could be reduced using several methods, including installing emission and noise control devices on the generators; using biodiesel, liquid propane, or compressed natural gas instead of diesel fuel; using low or ultra-low sulfur diesel fuel; and properly maintaining the equipment.

In the case of operations and response centers that receive expanded capabilities as part of PSIC-funded projects, there could be a small increase in the number of employees at the centers and a corresponding increase in vehicle emissions. It is assumed, however, that most enhancements of operations and response centers would involve the redistribution of existing capabilities within a jurisdiction and the net increase of employee vehicle emissions would not be significant. Vehicle emissions could be reduced by staggering shifts to allow employees to commute during nonpeak times or supporting the use of public transportation or carpooling.

There will be no significant impact to air quality from operations-related activities.

4.2.2.3 Air Quality Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Construction-related air quality impacts for Alternative 2 would be similar to those of the Preferred Alternative, but would be less adverse. Using existing sites would reduce construction and ground-disturbing activities, resulting in lower vehicle and equipment emissions and dust generation.

Operations-Related Impacts. Operations-related air quality impacts for Alternative 2 would be similar to the Preferred Alternative, since the use of previously undisturbed sites for expansion would not require any change to the center's operations procedures and protocols that would lead to changes in emissions.

4.2.2.4 Air Quality Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no operations and response centers would be expanded or renovated, no new generators would be installed, and no increase in employee vehicle use would occur. Any benefits realized from replacing older generators with newer, cleaner generators would not be realized. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. There would be no increase in air quality impacts from the No Action Alternative.

4.2.3 Geology and Soils

4.2.3.1 Significance Criteria

Impacts to geology and soils have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be

small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.2.3.2 Geology and Soils Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Under the Preferred Alternative, those PSIC-funded operations and response center projects involving only internal renovations and no ground-disturbing activities would have no impacts to geology, soils, or prime and unique farmlands.

For operations and response center projects that would involve the expansion of an existing center or the construction of a new center and thereby require ground-disturbing activities, such as digging and grading, over sites of 1 acre or more, a site-specific study would be necessary to determine the extent and nature of impacts to geologic resources. Factors affecting the significance of the impacts include the extent of ground disturbance necessary for construction and any associated utility trenching, as well as the depth to bedrock at the project site. It is unlikely that construction activities would go far outside the original construction footprint for the operation and response center, given that construction activities associated with the expansion of existing centers would likely be taking place within the construction site footprint of the original center. For this reason, impacts are not expected to be significant.

Impacts to soil resources resulting from expansion or new construction could include increased runoff in the project area as a result of soil erosion from vegetation removal, grading, and digging activities. Grantees must comply with all State and Territory stormwater protection regulations, which may include the preparation of a stormwater pollution prevention plan.

Any PSIC-funded projects that would remove prime or unique farmlands, as defined by the FPPA and as described in Section 3.3.1, must consult with the USDA to determine whether mitigation would be required and must adhere to all regulatory requirements. It is not expected that the renovation or expansion of operations and response centers would occur on prime or unique farmlands; therefore, no significant impacts to farmlands are expected.

Operations-Related Impacts. There would be no impacts to geology and soils as a result of operation of the centers under the Preferred Alternative, since operations would not involve any ground-disturbing activities.

4.2.3.3 Geology and Soils Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Construction-related impacts resulting from the implementation of Alternative 2 would be very similar to those expected for the Preferred Alternative. Since the majority of operations and response center projects under the Preferred Alternative are likely to occur on previously disturbed sites, as described in Section 4.2.3.2, a substantive difference in the types of project sites chosen between the Preferred Alternative and Alternative 2 is unlikely. As with the Preferred Alternative, any project involving ground disturbance of more than 1 acre would require a site-specific study to capture the nature and extent of impacts.

Impacts to soil resources resulting from expansion or new construction could include increased runoff in the project area as a result of soil erosion from vegetation removal, grading, and digging activities. Grantees must comply with all State and Territory stormwater protection regulations, which may include the preparation of a stormwater pollution prevention plan.

Any PSIC-funded projects that would remove prime or unique farmlands, as defined by the FPPA and as described in Section 3.3.1, must consult with the USDA to determine whether mitigation would be required and must adhere to all regulatory requirements. It is not expected that renovation or expansion of operations and response centers would occur on prime or unique farmlands; therefore, no significant impacts to farmlands are expected.

Operations-Related Impacts. There would be no impacts to geology and soils as a result of operation of the centers under Alternative 2, because no ground-disturbing activities would be required.

4.2.3.4 Geology and Soils Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no renovations or expansions to existing operations and response centers would occur; therefore, there would be no impacts to geology and soils. The functions and activities housed at the centers would not change. There would be no impacts to geology and soils, since operations at existing centers would not change.

4.2.4 Water Resources

4.2.4.1 Significance Criteria

Impacts to water resources have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.2.4.2 Water Resources Impacts, Preferred Alternative, Operations and Response Centers

4.2.4.2.1 Surface Water and Groundwater

Construction-Related Impacts. Water quality impacts during construction may occur from erosion resulting from soil disturbance for material storage, site access, site preparation, or road and driveway construction. Truck washing could also increase sediment reaching nearby streams. Vehicle and equipment refueling may have the potential for spills of petroleum products. The use of pesticides or herbicides to re-vegetate a site where existing vegetation has been degraded or cleared also has the potential to contaminate nearby waters. All these activities would be temporary and of limited duration.

Water quality impacts from construction activities vary depending on the construction type, the soils where the construction would occur, and the distance from the receiving waters. Considering the limited size of PSIC-funded operations and response center sites, including those larger than 1 acre, even construction of a complete new facility is unlikely to result in large amounts of erosion.

Minor erosion impacts from construction-related activities can be reduced or mitigated through with BMPs. BMPs for erosion include silt fencing or using straw bales to control erosion, limiting the area of uncovered soil to the minimum needed for each activity, siting staging areas to minimize erosion, replanting vegetation as soon as practicable, mulching, using temporary

gravel cover, and limiting the number and speed of vehicles on the site. A spill contingency plan should be implemented.

There will be no significant impact on water quality from construction activities.

Operations-Related Impacts. Operations-related impacts would be limited to erosion that occurs before the site is fully re-vegetated and spills caused by refueling of the heating system and backup generator. The use of pesticides or herbicides also has the potential to contaminate nearby waters.

BMPs from the construction site should be continued until the site is fully re-vegetated. A spill plan should be developed and followed to ensure appropriate response in the event of a spill. Limiting the use of pesticides and herbicides or following integrated pest management practices can reduce this potential impact.

There will be no significant impact to water quality from operations activities.

4.2.4.2.2 Floodplains

Under the Preferred Alternative, grantees would avoid siting new PSIC-funded operations and response centers in 500-year floodplains, since these centers constitute a critical action, or expanding those facilities located in 500-year floodplains, in accordance with EO 11988. If there is no practicable alternative to siting in a 500-year floodplain, then the grantee would modify the project to reduce the hazards and risks associated with floodplain development. For these projects, the grantee would engage the appropriate Federal and public entities to perform a site-specific analysis.

Interior renovation activities performed on existing operations and response centers located in the floodplain would have no impacts.

4.2.4.3 Water Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

4.2.4.3.1 Surface Water and Groundwater

Construction-Related Impacts. Construction-related water quality impacts for Alternative 2 would be similar to those of the Preferred Alternative but may be less adverse. Use of existing sites could reduce construction and ground-disturbing activities.

Operations-Related Impacts. Operations-related water quality impacts for Alternative 2 would be similar to those of the Preferred Alternative, because the exclusive use of previously disturbed sites would not change any operations-related procedures and protocols that would impact water quality.

4.2.4.3.2 Floodplains

Impacts to floodplains under Alternative 2 would be minimized, because construction would not take place in previously undisturbed areas. As with the Preferred Alternative, interior renovations performed on existing centers located in the floodplain have no impacts.

4.2.4.4 Water Resources Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, there would be no PSIC-funded renovation or expansion of operations and response centers. There would be no runoff from soil erosion caused by construction activities. There would be no likelihood of hazardous spills resulting from vehicle and equipment maintenance or re-vegetation activities. There would be no increase in impacts to water resources or floodplains from the No Action Alternative.

4.2.5 Biological Resources

4.2.5.1 Significance Criteria

Impacts to wildlife, wildlife habitat, and vegetation have been evaluated using the following criteria:

No Impact. Impacts to native species, their habitats, or the natural processes sustaining them would not occur, or conditions do not exist for impacts to occur.
No Significant Impact. Impacts to native species, their habitats, or the natural processes sustaining them as a result of alternatives to implement the Proposed Action would be detectable but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.
Significant Impact. Impacts from alternatives to implement the Proposed Action on native species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to Federally listed threatened and endangered species have been evaluated using terminology defined under the ESA as follows:

No effect. Listed species or designated critical habitat would not be affected *or* listed species or designated critical habitats are not present.
May affect / not likely to adversely affect. Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of “not likely to adversely affect.”
May affect / likely to adversely affect. An adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternatives to implement the Proposed Action or its interrelated or independent actions, and the effect is neither discountable nor insignificant; nor is it beneficial. The conclusion that a proposed project is “likely to adversely affect” requires initiation of formal Section 7 consultation and may also require the preparation of an EIS.
Likely to jeopardize proposed species / adversely modify proposed critical habitat. Situations are identified in which the alternatives to implement the Proposed Action could jeopardize a proposed species or adversely modify critical habitat to a species. If this criterion is reached, conference is required with FWS or NMFS, and the preparation of an EIS may also be required.

4.2.5.2 Biological Resources Impacts, Preferred Alternative, Operations and Response Centers

4.2.5.2.1 Wildlife, Wildlife Habitat, and Vegetation

Construction-Related Impacts. Short- and long-term adverse impacts on wildlife, habitats, and vegetation would be expected as a result of external construction-related activities for PSIC-funded projects to upgrade or enhance existing operations and response centers under the Preferred Alternative. Internal renovations would not have any impacts on wildlife, wildlife habitat, and vegetation. External construction activities may result in the disturbance of habitats

and wildlife. Potential adverse impacts on vegetation and wildlife associated with site development would vary, depending on the characteristics of the existing project site. Construction-related activities in an urbanized environment would be expected to have less potential for adverse impacts on native vegetation than activities in rural (naturally vegetated) areas that generally have more wildlife and habitats present. Impacts are not expected to be significant.

A number of construction-associated activities may adversely affect vegetation at a project site, such as projects that include clearing and grading of vegetated areas in preparation of new construction or renovations to existing facilities. Short- or long-term minor impacts would largely be localized to the immediate project area. The introduction of invasive vegetation into disturbed areas, and possibly into surrounding areas, could result in long-term impacts to the native plant community at project sites and surrounding areas. Regardless of project location, the nature of the construction impacts to vegetation (i.e., direct destruction from grading and clearing, loss of permanent habitat) would be similar in all physiographic regions, while the extent of the impacts would depend on the project footprint. Generally, the significance of vegetation loss would depend on the amount of area disturbed, the types of plant communities (and habitats) that would be affected, the nature of the effect, and the capacity for the disturbed habitat to recover. These factors would determine whether the construction-related activities to vegetation would be short- or long-term.

Similar to vegetation, wildlife may be affected during construction-related activities. The types of wildlife that could be affected and the overall impact would depend on (1) the physiographic region where the project would occur, (2) the nature and extent of the habitats and wildlife at the project site and surrounding areas, and (3) the nature of the disturbance (i.e., permanent or temporary). Construction-related activities may adversely affect wildlife by potentially reducing, altering, or fragmenting available habitat; introducing invasive species; causing injury or mortality to wildlife; noise; and behavioral impacts. Construction-related activities may result in mortality of some less mobile species (i.e., reptiles, amphibians, and small mammals). Construction-related activities may affect local wildlife by disturbing normal behavioral activities such as foraging, mating, and nesting. Wildlife may avoid foraging, mating, or nesting in areas where construction-related activities would occur. Most wildlife would be expected to relocate from areas within or immediately surrounding the construction area and would be expected to return to the area after the completion of construction-related activities.

The PSIC-funded projects are expected to have flexibility in the siting of new infrastructure or expansion of existing buildings that would have less impact on sensitive and unique habitats, vegetation, and protected wildlife areas. In addition, coordination would occur with applicable agencies to obtain Special Use Permits or other permits determined to be necessary on the basis of the final site locations. Site-specific analysis would be conducted, as necessary, at new sites once the site location is finalized.

Operations-Related Impacts. Routine maintenance activities on the project site would include mowing around associated site buildings and possibly along access roads. Mowing in these areas would maintain vegetation in early successional stages of community development and may prevent reestablishment of some species.

Potential adverse impacts on wildlife species sensitive to disturbance could result from temporary noise generated by mowing, climate control (i.e., heating and air conditioning) equipment, and backup generators associated with the project site. This reoccurring temporary noise disturbance would be minor, and species sensitive to the disturbance would be expected to retreat from the immediate location and associated equipment.

Operations-related activities would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

4.2.5.2.2 Migratory Birds

Construction-Related Impacts. No impacts on migratory birds would be expected as a result of construction-related activities for PSIC-funded projects to upgrade or enhance existing operations and response centers.

Operations-Related Impacts. Impacts associated with the operation of upgraded and enhanced operations and response centers would not be expected for migratory birds. There would be no activities that affect flyways or resting areas.

4.2.5.2.3 Threatened and Endangered Species

Construction-Related Impacts. Construction-related activities would affect threatened, endangered, and sensitive species in the same manner that vegetation and wildlife would be affected (Section 4.2.6.2.1). The threatened and endangered species that could be affected would depend on the physiographic region in which the project is planned and the nature and extent of the habitats at the project site and surrounding areas. Construction-related activities may adversely affect threatened and endangered species by potentially reducing, altering, or fragmenting available habitat; introducing invasive species; causing injury or mortality to wildlife; noise; and behavioral impacts.

The PSIC-funded projects are expected to have some flexibility in siting new infrastructure and in expanding existing facilities to decrease the impact on sensitive and unique species and associated habitats. In addition, coordination and consultation with FWS and other natural resource agencies might be required by the ESA, State regulations, and other resource-specific regulations and guidelines. The determination of whether the proposed construction-related activities for a project are likely to adversely affect a Federally listed threatened or endangered species will be based on site-specific correspondence with FWS, once a proposed project location is finalized. The determination of potential adverse impacts on State-listed species would also be site-specific. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination with the FWS or the NMFS under Section 7 of the ESA would be undertaken to ensure minimization of any potential adverse impacts.

Overall, construction-related activities would be expected to have no significant impact on threatened and endangered species.

Operations-Related Impacts. Potential minor adverse impacts on threatened and endangered species sensitive to disturbance could result from temporary noise generated by climate control (i.e., heating and air conditioning) equipment, mowing equipment, or backup generators. This recurring temporary noise disturbance would be minor, and species sensitive to the disturbance would be expected to retreat from the immediate location and associated equipment. Species may avoid the area until after operations-related activities have concluded, although more tolerant species may out-compete threatened and endangered species. Operations-related impacts would unlikely to adversely affect threatened and endangered species.

PSIC-funded projects are expected to have some flexibility in the siting of new infrastructure to avoid protected species and associated habitats. In addition, coordination and consultation with FWS and other natural resource agencies might be required by the ESA, State regulations, and other resource-specific regulations and guidelines. A determination of whether the proposed project is likely to adversely affect a Federally listed species would be based on site-specific correspondence with FWS, once a proposed project location is finalized. The determination of potential adverse impacts on State-listed species would also be site-specific. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination

with the FWS, and applicable State agency(s) would be undertaken to ensure minimization of any potential adverse impacts.

Overall, operations-related activities would be expected to have no significant impact on threatened and endangered species.

4.2.5.2.4 Wetlands

Construction-Related Impacts. Construction-related activities for a PSIC-funded project occurring on or near a wetland area would present risk of impact that could be short- or long-term, minor to severe, and cause temporary to permanent damage. Consistent with EO 11990, PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be affected and to establish appropriate mitigation to minimize adverse impacts.

Short- and long-term minor adverse impacts on wetlands in proximity to a project site could occur if water quality were degraded as a result of erosion and sedimentation and stormwater runoff from the project site during construction-related activities. Erosion and sediment control and stormwater BMPs would be implemented to minimize potentially adverse impacts on wetlands.

In the siting of new facilities, PSIC-funded projects are expected to have flexibility to select an area so the project would affect wetland habitats less. As the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses would be conducted of proposed site locations and before initial planning and design. These analyses would further evaluate potential impacts on wetlands on the basis of specific project design and location.

Overall, construction-related impacts would be expected to have no significant impact on wetlands, because sites near or in the vicinity of wetlands would be avoided if possible.

Operations-Related Impacts. Routine maintenance activities on the project site would include mowing around associated site buildings and possibly along access roads. Erosion and sediment control and stormwater BMPs would be implemented to minimize potential adverse impacts on wetlands occurring from routine maintenance activities.

Operations-related impacts would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

4.2.5.3 Biological Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

4.2.5.3.1 Wildlife, Wildlife Habitat, and Vegetation

Construction-Related Impacts. Impacts on wildlife, habitats, and vegetation resulting from construction activities under Alternative 2 would be less than those described under the Preferred Alternative, because the projects would occur on previously disturbed sites.

As the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses would be conducted, as necessary, once the PSIC-funded project sites were finalized and before project implementation.

Construction-related impacts would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

Operations-Related Impacts. Operations-related impacts on wildlife, habitats, and vegetation would be similar to those described under the Preferred Alternative.

4.2.5.3.2 Migratory Birds

Construction-Related Impacts. Short-term minor adverse construction-related impacts on migratory birds would be expected as a result of construction-related activities for PSIC-funded projects to upgrade or enhance existing operations and response centers. Potential adverse impacts from construction-related activities would vary, depending on the characteristics of the existing project site. Construction-related activities in an urbanized environment would be expected to have less potential for adverse impacts on native vegetation than activities in rural areas. Noise from the construction activities may temporarily disturb migratory birds, and they may avoid the area until construction-related activities have concluded.

Operations-Related Impacts. Impacts to migratory birds from the operation of Alternative 2 would be less than those described for the Preferred Alternative, because the projects would occur on previously disturbed sites.

4.2.5.3.3 Threatened and Endangered Species

Construction-Related Impacts. Construction-related activities that would affect threatened, endangered, and sensitive species would be less than those described under the Preferred Alternative, because locations with protected species would be avoided, if possible. Since the specific proposed locations of many PSIC-funded projects have not yet been finalized, additional analyses and consultations with Federal and State regulators of threatened and endangered species would be conducted as necessary once the PSIC-funded project sites were finalized and before project implementation.

Operations-Related Impacts. Impacts on threatened and endangered species similar to those discussed from the Preferred Alternative would be expected. PSIC-funded projects are expected to have some flexibility in the siting of new infrastructure to avoid protected species and associated habitats. In addition, coordination and consultation with FWS and other natural resource agencies might be required by the ESA, State regulations, and other resource-specific regulations and guidelines. Whether the proposed project is likely to adversely affect a Federally listed species would be determined on the basis of site-specific correspondence with FWS, once a proposed project location is finalized. The determination of potential adverse impacts on State-listed species would also be site-specific. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination with the FWS or NMFS under Section 7 of the ESA would be initiated to minimize any potential adverse impacts.

Overall, operations-related impacts would be expected to have no significant impact on threatened and endangered species.

4.2.5.3.4 Wetlands

Construction-Related Impacts. Construction-related activities could result in the disturbance of wetlands, depending on the project location, and short- and long-term, negligible to minor, adverse impacts on wetlands could be expected. Impacts on wetlands as discussed from the Preferred Alternative would be expected to be less for Alternative 2, since development would only take place on previously disturbed sites. Consistent with EO 11990, the PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance. If it were determined that encroachment of wetlands could not be avoided, consultation with the USACE would be conducted to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize the impacts.

Overall, construction-related impacts would be expected to have no significant impact on wetlands, because sites near or in the vicinity of wetlands would be avoided if possible.

Operations-Related Impacts. Operations-related impacts on wetlands similar to those discussed from the Preferred Alternative would be expected, because only previously disturbed sites would be chosen. Operations-related impacts would be expected to have no significant impact on wetlands.

4.2.5.4 Biological Resources Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, the PSIC-funded projects would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. No significant impacts on vegetation and wildlife, migratory birds, threatened and endangered species, or wetlands would occur under the No Action Alternative.

4.2.6 Historic and Cultural Resources

4.2.6.1 Significance Criteria

Impacts to historic and cultural resources have been evaluated using the following criteria:

No Impact. Impacts to any NRHP eligible or listed properties or to TCPs would not occur, or such conditions are not present.
No Significant Impact. The historic characteristics or setting of an NRHP eligible or listed property are altered or have the potential to be altered, but the resource retains its integrity (equates to *no adverse effect* under Section 106). The traditional, cultural, or religious significance to Native peoples of a TCP will not be compromised or diminished.
Significant Impact. The integrity of an NRHP eligible or listed property would be diminished or destroyed (equates to *adverse effect* under Section 106). The traditional, cultural, or religious significance of a TCP to Native peoples would be destroyed.

4.2.6.2 Historic and Cultural Resources Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Construction of operations and response centers and expansion of existing centers would potentially create significant adverse short- and long-term impacts to historic and cultural resources. Expansion and construction-related activities typically require both grading and excavation, which may disturb recorded and unrecorded archaeological resources at project sites. Related access roads and staging areas that may be required could also have the same impacts.

If any archaeological resources present have not been previously disturbed, their permanent removal, degradation, or disturbance may constitute a significant adverse impact. Once specific project sites have been finalized, a site-specific examination would be required to determine the full nature and extent of impacts to historic and cultural resources. Consultation with the appropriate SHPO/THPO would be required to accurately assess impacts, unless previously recorded archaeological surveys indicate the historic and cultural resources are not present at the project site. Those projects that do not involve any ground disturbance activities would not cause any direct impacts to archaeological resources.

Expansion and renovation of operations and response centers may generate short- and long-term, direct and indirect, impacts to architectural resources, if the building to be renovated is eligible for or listed on the NRHP, or if the construction site is within the viewshed of the resources in question. External modification of historic structures may also generate adverse impacts to architectural resources, depending on the extent and nature of the renovation. Impacts are not expected to be significant. However, consultation with the appropriate SHPO or THPO as part of a site-specific assessment would be required to fully determine the nature and extent of impacts once a site has been finalized.

Expansion and renovation of operations and response centers also has the potential to adversely impact TCPs in both short- and long-term, direct and indirect, ways. Direct impacts would result from the destruction or severe degradation of a TCP during the excavation or construction process. Indirect impacts could result from an infringement on the viewshed of a TCP or an action that restricts access to a TCP. These site-specific impacts may be assessed through consultation with the appropriate THPO once a project site has been identified, and a separate follow-on study would likely be required to determine whether impacts would be significant, unless a previously recorded survey were to indicate there were no TCPs in the APE.

Although no significant impacts are expected under the Preferred Alternative, site-specific studies and consultation with the SHPO/THPO may be required. If impacts to any historic and cultural resource type are found to be significant as a result of construction-related impacts under the Preferred Alternative, then the consultation process may identify measures that could mitigate the impacts to a level below significance.

Operations-Related Impacts. Operation of the centers would not typically require any ground-disturbing activities; therefore, no impacts to archaeological resources would be expected. The design of new centers or those planned for renovation may indirectly affect the viewshed of architectural resources in the area if they are not aesthetically compatible with the character of the historic surroundings. Once a site is finalized, a site-specific study may be required, in addition to consultation with the relevant SHPO or THPO, to determine the nature and extent of any impacts.

Operation of the centers could potentially have long-term significant impacts to TCPs, if the location of the site in any way restricts access to or degrades the integrity of a TCP. Once a site is finalized, a site-specific assessment, in addition to consultation with the appropriate THPO, would determine the nature and extent of the project's impacts to TCPs.

In summary, there would be no impacts to archaeological resources from the operation of the centers. Site-specific studies would be required to determine the impact of operations to architectural resources and TCPs. In the event that a site-specific study would be required, consultation with the SHPO/THPO would also be required.

If impacts to any historic and cultural resource type are found to be significant as a result of operations-related impacts under the Preferred Alternative, then the consultation process would identify measures that could mitigate the impacts to a level below significance.

4.2.6.3 Historic and Cultural Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Impacts to archaeological resources, architectural resources, and TCPs resulting from construction activities under Alternative 2 would be less adverse than those expected under the Preferred Alternative, because only previously disturbed sites would be used. Although unlikely, if there are historic resources in the viewshed or the potential for other indirect impacts exists, a site-specific follow-on analysis and consultation with the appropriate SHPO or THPO may be required, to ensure no significant impacts to any historic and cultural resources.

Operations-Related Impacts. Impacts to archaeological resources, architectural resources, and TCPs from the operation of Alternative 2 would be the same as those for the Preferred Alternative, because the use of previously disturbed sites would not change operations protocols and procedures. A site-specific study and consultation with the SHPO/THPO may be required to determine impacts to architectural resources and TCPs.

4.2.6.4 Historic and Cultural Resources Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded projects would be implemented. There would be no construction or renovation of operations and response centers. Therefore, no impacts to historic and cultural resources would result from the No Action Alternative.

4.2.7 Aesthetic and Visual Resources

4.2.7.1 Significance Criteria

Impacts to aesthetics and visual resources have been evaluated using the following criteria:

No Impact. Impacts to the viewshed of any historic resources or the aesthetic character of the surrounding area would not occur, or such conditions are not present.

No Significant Impact. No permanent direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action would be expected. Any visual disturbances that alter the character of the viewshed or aesthetic character of the surrounding area would be temporary, and the area would be returned to its original state following the action.

Significant Impact. Direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action are anticipated, and these effects would be greater in number, extent, or duration than nonsignificant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.2.7.2 Aesthetic and Visual Resources Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Under the Preferred Alternative, potential sources of impacts on aesthetics and visual resources from construction-related activities could include the clearing and grading of land, the construction of infrastructure necessary to operate the centers, and the construction or renovation of the specific sites' facilities. The degree of contrast would depend on the existing landscape, project-specific construction activities, and each viewer's perception. Most projects for operations and response centers are expected to be upgrades (renovations) or expansions to current centers in existing buildings; therefore, the PSIC-funded projects would avoid or minimize impacts on aesthetic and visual resources by selecting existing sites with existing road and utility corridors. The short-term impacts on aesthetic and visual resources resulting from construction-related activities would likely have no significant impact.

Operations-Related Impacts. Most projects for operations and response centers are expected to be upgrades (renovations) or expansions to current centers in existing buildings; therefore, the PSIC-funded projects would avoid or minimize impacts on aesthetic and visual resources by selecting existing sites with existing road and utility corridors. If overhead transmission lines (instead of buried lines) were used for power or communication, these lines would also represent a permanent feature. The long-term impacts resulting from the permanent placement of transmitting and receiving sites would likely have no significant impact. The degree of contrast would depend on the existing landscape and each viewer's perception.

4.2.7.3 Aesthetic and Visual Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Construction-related impacts to aesthetics and visual resources for Alternative 2 would be similar to those discussed from the Preferred Alternative, but to a lesser degree, since the use of only existing sites would substantially reduce construction and ground-disturbing activities.

Operations-Related Impacts. Operations-related aesthetics and visual resources impacts for Alternative 2 would be less than those described for the Preferred Alternative, since the projects would occur on previously disturbed sites.

4.2.7.4 Aesthetic and Visual Resources Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no construction or renovation of operations and response centers. Therefore, there would be no impact to aesthetic or visual resources resulting from the No Action Alternative.

4.2.8 Land Use

4.2.8.1 Significance Criteria

Impacts to land use and coastal resources have been evaluated using the following criteria:

No Impact. Impacts to existing land use patterns would not occur.
No Significant Impact. Impacts to land use would be measurable or perceptible but would be limited to a relatively small change in land use that is still compatible with surrounding or planned land uses. The alternatives to implement the Proposed Action would be consistent with respective State CZMPs and would not affect coastal barrier resources.
Significant Impact. Impacts to land use would be substantial. Surrounding land uses are expected to substantially change in the short and long term. The alternatives to implement the Proposed Action would not be consistent with either the surrounding land use or State CZMPs or would impact coastal barrier resources.

4.2.8.2 Land Use Impacts, Preferred Alternative, Operations and Response Centers

4.2.8.2.1 General Land Use Compatibility

Under the Preferred Alternative, the primary activity undertaken would be the renovation and expansion of existing operations and response centers using PSIC funds. Since the majority of these centers are already in existence and the proposed interior and exterior modifications would not change their purpose, function, or associated activities, no impact to land use is expected.

If a new center is proposed, permits and consultation may be required to evaluate the compatibility of the new facility with existing master plans, zoning ordinances, and other elements of the local planning framework.

4.2.8.2.2 Coastal Zone

To ensure that building modifications would be consistent with the relevant State or Territory CZMP, proposed PSIC-funded renovations and expansions to operations and response centers under the Preferred Alternative in the coastal zone would be subject to a State consistency determination. For projects to which this requirement applies, impacts would be determined on a site-specific level.

4.2.8.2.3 Coastal Barriers

To ensure that building modifications would not impact the CBRS, proposed PSIC-funded renovations and expansions to operations and response centers on coastal barrier lands under the Preferred Alternative should be submitted for consultation with FWS. For projects to which this requirement applies, impacts would be determined on a site-specific level.

4.2.8.3 Land Use Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

4.2.8.3.1 General Land Use Compatibility

Impacts to general land use compatibility would be less adverse under Alternative 2 than those expected under the Preferred Alternative, because no new sites would be developed and renovations or expansion to existing centers would not constitute a change in land use.

4.2.8.3.2 Coastal Zone

Impacts to coastal zone resources would be less adverse under Alternative 2 as those expected under the Preferred Alternative, because the use of previously disturbed sites would result in no new development in the coastal zone as a result of PSIC-funded projects.

4.2.8.3.3 Coastal Barriers

Impacts to coastal zone resources would be less adverse under Alternative 2 as those expected under the Preferred Alternative, because the use of previously disturbed sites would result in no new development on coastal barrier resources as a result of PSIC-funded projects.

4.2.8.4 Land Use Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded renovations and expansions of operations and response centers would take place. There would be no impacts to land use, the coastal zone, or coastal barrier resources resulting from the No Action Alternative.

4.2.9 Infrastructure

4.2.9.1 Significance Criteria

Impacts to utilities have been evaluated using the following criteria:

No Impact. Impacts to the human or natural environment would not occur, or such conditions are not present.

No Significant Impact. An impact to the human or natural environment would occur but is less than thresholds indicated below for "significant impact."

Significant Impact.

- **Electricity.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require energy in quantities that would exceed local or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy.
- **Communications.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require communication systems to meet requirements that could not be provided without major modifications to the existing systems.
- **Potable Water.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more potable water than could be reliably provided by available potable water sources, leading to shortages, or if regulatory limitations on withdrawals would potentially be exceeded.
- **Natural Gas.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more natural gas than could be reasonably provided by the existing system, leading to shortages.
- **Wastewater.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more wastewater treatment capacity than could be reliably provided by the existing wastewater treatment system, potentially leading to the discharge of effluents in excess of standards. Major shortfalls in collection capacity could also be potentially significant.

Impacts on solid waste collection and disposal have been evaluated using the following criteria:

No Impact. The alternatives to implement the Proposed Action do not affect the human or natural environment.
No Significant Impact. An effect to the human or natural environment would occur, but it is less than thresholds, indicated below, for "significant impact."
Significant Impact. Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require collection or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

Impacts on the transportation network have been evaluated using the following criteria:

No Impact. No alterations of traffic patterns and trends would occur; no additional demand would be placed on the existing transportation network.
No Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would be within the network's capacity and could be absorbed without creating disruption. Traffic patterns and trends would not undergo changes that would affect service.
Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would exceed the network's capacity, creating disruptions in service in roadways, rail, or air transportation.

4.2.9.2 Infrastructure Impacts, Preferred Alternative, Operations and Response Centers

4.2.9.2.1 Utilities

Construction-Related Impacts. Short-term minor impacts on utility quality and availability would be anticipated for developed areas. In the unlikely event that construction or maintenance activities result in actual damage to a utility system or interruption of services resulting from installation of an operations and response center, a short-term, significant impact may occur. For rural areas and projects involving new construction or extensive renovations, more extensive construction-related activities could require additional short-term electric and communication services from available utility networks. Undeveloped areas may require construction-related activities to connect to utility services, if utilities do not exist or are too far from a project site.

During construction-related activities, precautions would be taken to avoid damage to existing utility lines. All potential modifications to utility services would be evaluated as part of site-specific investigations. Coordination with potentially affected local and regional utility service providers should be taken to avoid unnecessary damage or interruption of service.

The short-term impacts on utilities resulting from construction-related activities would likely have no significant impact.

Operations-Related Impacts. Depending on the PSIC project, the operations and response centers would not be expected to cause noticeable impacts to local utility services. Utility services would be expected to fulfill the utility needs of an operations and response center. There would be no significant impact to utility services from operations-related activities.

4.2.9.2.2 Solid Waste

Construction-Related Impacts. Short-term minor impacts would be expected during construction-related activities, since solid waste would be generated and require disposal. For some projects, large volumes of solid waste would be generated. Solid waste that could be generated from construction activities includes building materials (i.e., solid pieces of concrete, metal piping and wiring, and lumber). If possible, construction and demolition materials would be recycled, thereby diverting the waste from landfills. There would be no significant impact to solid

waste from construction-related activities, because solid waste facilities would be expected to fulfill the waste disposal needs of an operations and response center.

Operations-Related Impacts. Normal use of operation and response centers would be unlikely to require a significant increase in solid waste collection and disposal services. The amount of waste generated during normal operations would not cause a significant impact on local or regional solid waste management resources. There would be no significant impact to solid waste resulting from operations-related activities.

4.2.9.2.3 Transportation Network

Construction-Related Impacts. For operations and response centers requiring construction-related activities, the heavy equipment and materials that may be needed for site access, site preparation, and construction would be typical of construction projects and would not pose unique transportation network considerations. Construction projects may require numerous truck trips to haul materials to a project site or to dispose of waste materials. The number of construction-related trips and the frequency and duration of impacts would be dependent on the location, nature, and scale of the project. During the construction period, the movement of heavy equipment and materials to a project site during construction may cause a short-term increase in the level of service along local roadways.

If construction-related activities were to occur adjacent to roadways, disruption of traffic on these roads could occur. Delays or detours may be necessary, depending on the project's nature and location. The degree of impact depends, in part, on the current level of service on potentially affected roads (i.e., roads at or above capacity would be more heavily affected than roads that are substantially below capacity). Shipments of construction-related materials (i.e., gravel, concrete, and water) would not be expected to significantly affect local primary and secondary road networks.

Potential impacts to transportation are expected to be low, provided appropriate planning and implementation actions are taken. Existing roads should be used to the maximum extent possible. There would be no significant impact to transportation networks resulting from construction-related activities.

Operations-Related Impacts. Transportation activities could vary—from a small number of daily trips by medium-duty vehicles or personal vehicles to a small increase in employees commuting to an operations and response center. Transportation activities during operations would not be expected to cause noticeable impacts to local transportation networks. However, depending on the location of the operations and response center, new transportation network signals or signage may be required. In general, there would be no significant impact to transportation networks resulting from operations-related activities.

4.2.9.3 Infrastructure Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

4.2.9.3.1 Utilities

Short-term minor impacts on utility quality and availability would be anticipated for PSIC-funded projects on previously undisturbed sites. Impacts on utilities similar to those discussed from the Preferred Alternative would be expected, because projects would occur only on previously disturbed sites within an established utility network.

4.2.9.3.2 Solid Waste

There would be no significant impact to solid waste. Impacts on solid waste similar to those discussed from the Preferred Alternative would be expected, because projects would occur on previously disturbed sites and in areas with established solid waste disposal facilities.

4.2.9.3.3 Transportation Network

There would be no significant impact to transportation networks. Impacts on transportation networks would be less than those discussed from the Preferred Alternative, because existing transportation networks would already be in place and few to no new access roads would be required.

4.2.9.4 Infrastructure Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no construction or renovation of operation and response center projects. There would be no impact to utilities, solid waste, or the transportation network resulting from the No Action Alternative.

4.2.10 Socioeconomic Resources

4.2.10.1 Significance Criteria

Impacts to socioeconomic resources have been evaluated using the following criteria:

No Impact. Impacts to demographics, employment, housing, or services would not occur. No effects on low-income or minority populations would occur.

No Significant Impact. There would be some measurable changes to demographics, employment, or the demand for housing or services, but they would not affect the availability of jobs, housing, or services. There would be no disproportionate effects to low-income or minority populations.

Significant Impact. There would be measurable changes to demographics, employment, or the demand for housing or services that would affect the availability of jobs, housing, or services. There would be disproportionate impacts to low-income or minority populations.

4.2.10.2 Socioeconomic Resources Impacts, Alternative, Operations and Response Centers

Under the Preferred Alternative, expenditures associated with the implementation of PSIC-funded grant programs would represent a small portion of overall Statewide spending and the Statewide economy. Total PSIC-funding for all projects and investments in the State of California—the State with the largest population and which would receive the most funding under the program—would be approximately $94 million. California's contribution to GDP in 2007 was approximately $1.8 trillion (BEA, 2008); therefore, spending resulting from PSIC-funded projects would represent 0.00005 percent of the total State economy of California and would not have a significant impact on economic development.

Total PSIC-funding for American Samoa—the Territory with the smallest population and which would receive the least funding under the PSIC Grant Program—would be approximately $692,000. The GDP for American Samoa in 2003 was estimated at $510 million (CIA, 2008). Although PSIC-related spending would represent a larger contribution to the overall Territory economy in American Samoa than it would represent to the overall economy of California, it would still only represent only 0.001 percent of the total economy, and impacts to economic development would not be significant.

The implementation of PSIC-funded projects may result in a small increase in jobs for development activities associated with operations and response centers, but the increase is not expected to be significant in any State, Territory, or the District of Columbia.

Since there would not be a significant increase in employment and no in-migration expected as a result of the Proposed Action , there are no impacts expected to demographics, the supply of housing, or the ability of State, Territory, or other local entities to provide public services.

The potential for impacts on minority and low-income populations would be based on the evaluation of specific site characteristics. Operations and response centers disproportionately proposed for a low-income or minority area, as defined in Section 3.10.1, regardless of the need to increase coverage, may cause adverse impacts to environmental justice, but these impacts are not expected to be significant. If centers are proposed to alleviate an identified coverage gap, then there would be no impacts to environmental justice.

4.2.10.3 Socioeconomic Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Impacts to socioeconomic resources and environmental justice under Alternative 2 would be the same as those under the Preferred Alternative, because expenditures would not be expected to change. Impacts to environmental justice would be based on site-specific characteristics, as discussed in Section 4.2.11.2.

4.2.10.4 Socioeconomic Resources Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded operations and response center projects would be implemented, and no PSIC-related spending would take place. Under the No Action Alternative, there would be no increase in economic activity and job creation related to implementation of the program, and there would be no PSIC-related impacts to demographics, the availability of housing, the availability of services, or environmental justice issues.

4.2.11 Human Health and Safety

4.2.11.1 Significance Criteria

Impacts to human health and safety have been evaluated against the following criteria:

No Impact. Increases would not occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of. There would be no increase in workplace safety hazards.

No Significant Impact. Hazardous or toxic materials or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no increase in workplace safety hazards.

Significant Impact. A net increase would occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation(s). Site contamination conditions could preclude development of sites for the proposed use. Workplace hazards, such as on-the-job injuries, could increase.

4.2.11.2 Human Health and Safety Impacts, Preferred Alternative, Operations and Response Centers

Construction-Related Impacts. Under the Preferred Alternative, there would be a slight increase in workplace safety hazards during the construction phase of PSIC-funded renovations, expansions, and upgrades to operations and response centers because of the nature of construction work and the increased intensity of work at the proposed project sites. The impact of this increase would not be significant. Work areas surrounding construction activities would be fenced, and appropriate signs would be posted to further minimize safety risks.

Renovations to older operations and response centers may result in exposure to regulated hazardous substances, such as PCBs and asbestos. These materials would be handled and disposed of in accordance with all applicable Federal, State, and local regulations.

Operations-Related Impacts. Under the Preferred Alternative, the implementation of PSIC-funded renovations, expansions, and upgrades to operations and response centers would

enable public safety agencies to improve interoperable communications and communicate more effectively in an emergency or crisis situation. This would result in an operations-related beneficial impact to human health and safety.

4.2.11.3 Human Health and Safety Impacts, Alternative 2 (Previously Disturbed Sites Only), Operations and Response Centers

Construction-Related Impacts. Impacts to human health and safety resulting from construction would potentially be more adverse under Alternative 2 than those expected under the Preferred Alternative. The exclusive use of previously disturbed sites may increase the likelihood of discovering possible site contamination from previous development and use. All other construction procedures and safety protocols are expected to remain the same, regardless of construction site type.

Operations-Related Impacts. Impacts to human health and safety resulting from operations could be more adverse under Alternative 2 than those expected under the Preferred Alternative. The use of a previously disturbed site could present possible site contamination issues that may have associated requirements for ongoing operations, such as monitoring and sampling. Asbestos and PCBs, substances currently subject to regulation under TSCA, may be found in older structures and at older, previously disturbed sites. Furthermore, proposed project sites are selected on the basis of their location in an underserved area. A requirement to select alternative sites may reduce the ability to improve services to an area, creating an adverse impact. This impact is not expected to be significant.

4.2.11.4 Human Health and Safety Impacts, No Action Alternative, Operations and Response Centers

Under the No Action Alternative, no PSIC-funded renovations, expansions, or upgrades of operations and response centers would be implemented. Current interoperability gaps would continue, compromising the ability of first responders to respond effectively and rapidly to emergency situations. There would be adverse impacts to human health and safety as a result of the No Action Alternative.

4.3 ENVIRONMENTAL CONSEQUENCES—MOBILE INFRASTRUCTURE

The implementation of the Proposed Action or one of its alternatives has the potential to impact environmental resources throughout the 50 States, 5 Territories, and the District of Columbia. This section identifies and evaluates the environmental impacts associated with the alternatives for implementing the mobile infrastructure Proposed Action and also the No Action Alternative.

Acquisition and the pre-positioning of mobile infrastructure by municipalities or the use of mobile infrastructure as a component of the strategic technology reserve will support both a faster response and faster return to service of communications after natural or man-made disasters or terrorist attacks. Positioning the equipment closer to the scene of the emergency will speed recovery of service. Mobile infrastructure may include trailer and truck-mounted command centers, mobile cell sites with portable towers, and associated antennae. Each piece of mobile infrastructure will be equipped to operate with power from the local energy grid or a backup generator. The equipment will be stored and garaged at existing emergency responder sites. No new construction is anticipated for this support activity; therefore, construction-related impacts are not evaluated.

4.3.1 Noise

4.3.1.1 Significance Criteria

Impacts to noise were evaluated using the following criteria:

No Impact. Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.
No Significant Impact. Noise levels resulting from alternatives to implement the Proposed Action would exceed natural sounds, as described under no impact, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature.
Significant Impact. Noise levels would exceed typical noise levels from construction equipment and generators permanently or for a prolonged period of time.

4.3.1.2 Noise Impacts, Preferred Alternative, Mobile Infrastructure

Implementation of the Preferred Alternative would not result in significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts or measurably increase the ambient noise levels. Field-based training exercises with vehicle operations would occur at designated and established installations for minimal noise impacts to surrounding communities. No significant impacts to the average ambient noise level will occur because of the proposed project. Impacts associated with the acquisition and deployment of mobile infrastructure equipment would not be expected

There would be no impacts to ambient noise levels as a result of storage or deployment of mobile infrastructure.

4.3.1.3 Noise Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

Similar with the Preferred Alternative, implementation of Alternative 2 would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. Noise from vehicle operations would not be sufficiently high as to cause hearing damage or disturb surrounding communities. Field-based training exercises with vehicle operations would occur at designated and established installations for minimal noise impacts to surrounding communities.

Generator operation would be similar to that anticipated for the Preferred Alternative. Alternative 2 is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. No significant long-term impacts to the average ambient noise level will occur because of the proposed project.

4.3.1.4 Noise Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no adverse impacts to the ambient noise environment resulting from the No Action Alternative.

4.3.2 Air Quality

4.3.2.1 Significance Criteria

Impacts to air quality have been evaluated using the following criteria:

No Impact. Impacts to air quality would not occur as a result of the action.
No Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas are less than exceedance levels, as defined in Table 3-3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Projects are *de minimis* or conform to SIP in nonattainment and maintenance areas.

Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas would be greater than the exceedance levels. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS. Projects do not conform to SIP in nonattainment and maintenance areas.

4.3.2.2 Air Quality Impacts, Preferred Alternative, Mobile Infrastructure

Impacts to air quality would be generated from driving a gasoline or diesel-powered vehicle to tow a trailer to an exercise or emergency site and the use of a backup generator for the duration of the exercise or until the grid power can be reestablished.

Emissions can be reduced by installing emission control devices on the generators, using biodiesel, liquid propane, or compressed natural gas instead of diesel fuel, using low- or ultra-low sulfur diesel fuel, and properly maintaining the generator. Emissions of criteria air pollutants are not expected to be greater than the exceedance levels defined in Table 3-3.

There will be no significant impact to air quality resulting from the Preferred Alternative.

4.3.2.3 Air Quality Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

Air quality impacts for Alternative 2 would be similar to those expected under the Preferred Alternative. The only difference between the two is the preference to use only previously disturbed sites for the mobile infrastructure during emergencies or training exercises, and therefore, there would be no increase air quality more than the Preferred Alternative.

4.3.2.4 Air Quality Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no increases in emissions as a result of the deployment or the use of backup generators to power such equipment. There would be no increase in air quality impacts resulting from the No Action Alternative.

4.3.3 Geology and Soils

4.3.3.1 Significance Criteria

Impacts to geology and soils have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.3.3.2 Geology and Soils Impacts, Preferred Alternative, Mobile Infrastructure

The acquisition and deployment of mobile infrastructure are not expected to involve ground-disturbing or construction activities. There would be no impacts to geology and soils resulting from the Preferred Alternative.

If the operation of vehicles associated with mobile infrastructure required the vehicle to go off-road for any reason, those vehicles might adversely impact geology and soils by contributing to

increased soil erosion and compaction from vehicle tracks. Impacts to topography and soil resources would vary to some degree, based on the physiographic region and local environment of the operations. Because of the relatively small scale of exercises and the expected planning for and review of exercises by natural resources managers, impacts are not expected to be significant.

For those vehicles that would be operated only on paved roads, there would be no impacts to geology and soil resulting from the Preferred Alternative.

4.3.3.3 Geology and Soils Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

The acquisition and deployment of mobile infrastructure are not expected to involve ground-disturbing or construction activities. Alternative 2 would result in no impacts to geology and soils.

If the operation of vehicles associated with mobile infrastructure required the vehicle to go off-road for any reason, those vehicles might adversely impact geology and soils by contributing to increased soil erosion and compaction from vehicle tracks. Impacts to topography and soil resources would vary to some degree, based on the physiographic region and local environment of the operations. However, impacts would be somewhat greater than those seen under the Preferred Alternative because of the use of previously disturbed sites, if ground cover were already degraded and more bare soil were exposed. Because of the relatively small scale of exercises and the expected planning for and review of exercises by natural resources managers, impacts are not expected to be significant.

For those vehicles that would be operated only on paved surfaces, there would be no impacts to geology and soil resulting from Alternative 2.

4.3.3.4 Geology and Soils Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no impacts to geology and soils, including to prime and unique farmlands, resulting from the No Action Alternative.

4.3.4 Water Resources

4.3.4.1 Significance Criteria

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.3.4.2 Water Resources Impacts, Preferred Alternative, Mobile Infrastructure

4.3.4.2.1 Surface Water and Groundwater

Impacts to water resources would be limited to erosion that occurs during exercises and response activities in which mobile infrastructure is deployed, particularly in an off-road setting. Increased erosion or degradation of vegetative cover as the result of vehicle operations may result in increased runoff and may require re-vegetation. Furthermore, the presence of

hazardous materials (associated with vehicular operation and maintenance) and of fertilizers and pesticides (used when re-vegetating a site) brings the possibility for a spill that could affect water quality. For major exercises, it is expected that a spill plan would be developed and followed. Limiting the use of pesticides and herbicides and following integrated pest management practices can reduce this potential impact.

There will be no significant impact to water quality resulting from the Preferred Alternative.

4.3.4.2.2 Floodplains

Mobile infrastructure does not fall into the category of "critical actions" as defined under EO 11988; therefore, it is held to the 100-year floodplain standard instead of the 500-year floodplain standard that applies to towers and operations and response centers. The procurement and deployment of mobile infrastructure would not result in the building of any structures in a 100-year floodplain; therefore, there would be no impacts to floodplains resulting from the Preferred Alternative.

4.3.4.3 Water Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

4.3.4.3.1 Surface Water and Groundwater

Impacts to water quality from Alternative 2 would be somewhat more adverse when compared with those expected for the Preferred Alternative. Although erosion resulting from off-road training would not be substantially different between previously undisturbed and previously disturbed sites, the use of previously disturbed sites may result in further degradation of sites' ground cover, increasing exposure of bare soil, and thereby fewer natural impediments to erosion.

4.3.4.3.2 Floodplains

Impacts to floodplains from Alternative 2 would be similar to those expected for the Preferred Alternative, because no permanent installation of structures in the 100-year floodplain would be expected.

4.3.4.4 Water Resources Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. As a result, there would be no associated erosion and runoff from the use of mobile infrastructure. Therefore, there would be no increase in impacts to water resources or floodplains resulting from the No Action Alternative.

4.3.5 Biological Resources

4.3.5.1 Significance Criteria

Impacts to wildlife, wildlife habitat, and vegetation have been evaluated using the following criteria:

No Impact. Impacts to native species, their habitats, or the natural processes sustaining them would not occur, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to native species, their habitats, or the natural processes sustaining them as a result of alternatives to implement the Proposed Action would be detectable but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Impact. Impacts from alternatives to implement the Proposed Action on native species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time or be

permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to Federally listed threatened and endangered species have been evaluated using terminology defined under the ESA as follows:

No effect. Listed species or designated critical habitat would not be affected *or* listed species or designated critical habitats are not present.
May affect / not likely to adversely affect. Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of "not likely to adversely affect."
May affect / likely to adversely affect. An adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternatives to implement the Proposed Action or its interrelated or independent actions, and the effect is neither discountable nor insignificant; nor is it beneficial. The conclusion that a proposed project is "likely to adversely affect" requires initiation of formal Section 7 consultation and may also require the preparation of an EIS.
Likely to jeopardize proposed species / adversely modify proposed critical habitat. Situations are identified in which the alternatives to implement the Proposed Action could jeopardize a proposed species or adversely modify critical habitat to a species. If this criterion is reached, conference is required with FWS or NMFS, and the preparation of an EIS may also be required.

4.3.5.2 Biological Resources Impacts, Preferred Alternative, Mobile Infrastructure

4.3.5.2.1 Wildlife, Wildlife Habitat, and Vegetation

Impacts to wildlife, wildlife habitat, and vegetation associated with the acquisition and deployment of mobile infrastructure would not be expected. PSIC-funded projects may have flexibility in the siting of mobile infrastructure and would seek to avoid sensitive and unique habitats, vegetation, and protected wildlife areas. In addition, coordination would occur with applicable agencies to obtain Special Use Permits or other permits. Site-specific analysis would be conducted, as necessary, at new sites once the site location is finalized.

Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to wildlife, wildlife habitat, and vegetation. No significant impacts to the local environment would occur because of the Preferred Alternative, and no impacts to wildlife, wildlife habitat, and vegetation would be expected.

4.3.5.2.2 Migratory Birds

Impacts to migratory birds associated with the acquisition and deployment of mobile infrastructure would not be expected. Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to migratory birds. No significant impacts to the local environment would occur because of the Preferred Alternative, and no impacts to migratory birds would occur.

4.3.5.2.3 Threatened and Endangered Species

Impacts to threatened and endangered species associated with the acquisition and deployment of mobile infrastructure would not be expected. PSIC-funded projects may have flexibility in the siting of mobile infrastructure and would seek to avoid sensitive and unique species and

associated habitats. In addition, because of the regulatory requirements of the ESA, various State regulations, and other resource-specific regulations and guidelines, coordination with FWS and NMFS would occur. Whether the proposed construction-related activities for a project are likely to adversely affect a Federally listed threatened or endangered species would be determined by site-specific correspondence with FWS (or NMFS), once proposed project locations are finalized. Potentially adverse impacts on State-listed species would also be determined on a site-specific basis. If it is determined that there are potentially adverse impacts on a threatened or endangered species, coordination would occur with the FWS or the NMFS under Section 7 of the ESA to ensure minimization of any potential adverse impacts.

Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to threatened or endangered species. No significant impacts to the local environment would occur because of the proposed project. The Preferred Alternative would not affect a listed species or designated critical habitat.

4.3.5.2.4 Wetlands

Impacts to wetlands associated with the acquisition and deployment of mobile infrastructure would not be expected. Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to wetlands. Consistent with EO 11990, PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands protection by mitigating potential impacts through avoidance or the development and implementation of SPCCs. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize adverse impacts.

There would be no significant impacts to wetlands resulting from the Preferred Alternative.

4.3.5.3 Biological Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

4.3.5.3.1 Wildlife, Wildlife Habitat, and Vegetation

Impacts to wildlife, wildlife habitat, and vegetation associated with the acquisition and deployment of mobile infrastructure would not be expected. The PSIC-funded projects may have some flexibility in the siting of mobile infrastructure and would seek to avoid sensitive and unique habitats, vegetation, and protected wildlife areas. In addition, coordination would occur with applicable agencies to obtain Special Use Permits or other permits. Site-specific analysis would be conducted, as necessary, at new sites once the site location is finalized.

Because of the occasional and intermittent operation of the mobile infrastructure and the use of previously disturbed sites, Alternative 2 is not anticipated to cause adverse short- or long-term impacts to wildlife, wildlife habitat, and vegetation. There would be no significant impacts to the local environment resulting from Alternative 2, and no impacts to wildlife, wildlife habitat, and vegetation would be expected.

4.3.5.3.2 Migratory Birds

Impacts to migratory birds associated with the acquisition and deployment of mobile infrastructure would not be expected. Because of the occasional and intermittent operation of the mobile infrastructure, Alternative 2 is not anticipated to cause adverse short- or long-term impacts to migratory birds. There would be no significant impacts to the local environment and no impacts to migratory birds resulting from Alternative 2.

4.3.5.3.3 Threatened and Endangered Species

Impacts to threatened and endangered species associated with the acquisition and deployment of mobile infrastructure would not be expected. PSIC-funded projects may have flexibility in the siting of mobile infrastructure and would seek to avoid sensitive and unique species and associated habitats. In addition, because of the regulatory requirements of the ESA, State regulations, and other resource-specific regulations and guidelines, coordination with FWS and NMFS would occur if required.

Because of the occasional and intermittent operation of the mobile infrastructure, Alternative 2 is not anticipated to cause adverse short- or long-term impacts to threatened or endangered species. No significant impacts to the local environment would occur because of the proposed project. Alternative 2 would not affect a listed species or designated critical habitat.

4.3.5.3.4 Wetlands

Impacts to wetlands associated with the acquisition and deployment of mobile infrastructure would not be expected. Because of the occasional and intermittent operation of the mobile infrastructure, Alternative 2 is not anticipated to cause adverse short- or long-term impacts to wetlands. Consistent with EO 11990, the PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be impacted, and to establish appropriate mitigation to minimize adverse impacts.

There would be no significant impacts to wetlands resulting from Alternative 2.

4.3.5.4 Biological Resources Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no significant impacts on vegetation and wildlife, migratory birds, threatened and endangered species, or wetlands resulting from the No Action Alternative.

4.3.6 Historic and Cultural Resources

4.3.6.1 Significance Criteria

Impacts to historic and cultural resources have been evaluated using the following criteria:

No Impact. Impacts to any NRHP eligible or listed properties, or TCPs, would not occur, or such conditions are not present.
No Significant Impact. The historic characteristics or setting of an NRHP eligible or listed property are altered, or have the potential to be altered, but the resource retains its integrity (equates to *no adverse effect* under Section 106). The traditional, cultural, or religious significance to Native peoples of a TCP will not be compromised or diminished.
Significant Impact. The integrity of an NRHP eligible or listed property would be diminished or destroyed (equates to *adverse effect* under Section 106). The traditional, cultural, or religious significance of a TCP to Native peoples would be destroyed.

4.3.6.2 Historic and Cultural Resources Impacts, Preferred Alternative, Mobile Infrastructure

The acquisition of mobile infrastructure would not involve any construction, other ground-disturbing activities, external renovations to structures, or installation of any permanent fixed structures or buildings. Therefore, there would be no impacts on archaeological resources, architectural resources, or TCPs resulting from the acquisition of mobile infrastructure under the Preferred Alternative.

If mobile infrastructure is deployed in a sensitive historic and cultural resources area, it has the potential to create impacts to archaeological resources or TCPs. Through planning and review of exercises before deployment, these areas would be avoided, and impacts are not expected to be significant.

4.3.6.3 Historic and Cultural Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

The acquisition of mobile infrastructure would not involve any construction, other ground-disturbing activities, external renovations to structures, or installation of any permanent fixed structures or buildings. Therefore, there would be no impacts on archaeological resources, architectural resources, or TCPs resulting from the acquisition of mobile infrastructure under Alternative 2.

If mobile infrastructure is deployed in a sensitive historic and cultural resources area, it has the potential to create impacts to archaeological resources or TCPs. The use of previously disturbed sites may minimize impacts to these resources to some degree. Furthermore, through planning and review of exercises before deployment, these areas would be avoided where possible, and impacts are not expected to be significant.

4.3.6.4 Historic and Cultural Resources Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no impacts on archaeological resources, architectural resources, or TCPs resulting from the No Action Alternative.

4.3.7 Aesthetic and Visual Resources

4.3.7.1 Significance Criteria

Impacts to aesthetics and visual resources have been evaluated using the following criteria:

No Impact. Impacts to the viewshed of any historic resources or the aesthetic character of the surrounding area would not occur, or such conditions are not present.
No Significant Impact. No permanent direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action would be expected. Any visual disturbances that alter the character of the viewshed or aesthetic character of the surrounding area would be temporary, and the area would be returned to its original state following the action.
Significant Impact. Direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action are anticipated, and these effects would be greater in number, extent, or duration than nonsignificant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.3.7.2 Aesthetic and Visual Resources Impacts, Preferred Alternative, Mobile Infrastructure

Impacts associated with the acquisition and deployment of mobile infrastructure would be expected to be temporary. PSIC-funded projects may have flexibility in the siting of mobile infrastructure and would seek to avoid or minimize impacts on aesthetic and visual resources by selecting existing storage sites and existing first responder stations for mobile infrastructure where possible.

Because of the occasional and intermittent operation of mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to aesthetic and visual resources. No significant impacts to the local environment would occur because of the proposed project.

4.3.7.3 Aesthetic and Visual Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

Impacts to aesthetics and visual resources for Alternative 2 would be similar to those discussed from the Preferred Alternative, but to a lesser degree, since only existing sites would be used to store mobile infrastructure.

4.3.7.4 Aesthetic and Visual Resources Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no impact to aesthetic or visual resources resulting from the No Action Alternative.

4.3.8 Land Use Planning

4.3.8.1 Significance Criteria

Impacts to land use planning have been evaluated using the following criteria:

No Impact. Impacts to existing land use patterns would not occur.
No Significant Impact. Impacts to land use would be measurable or perceptible but would be limited to a relatively small change in land use that is still compatible with surrounding or planned land uses. The alternatives to implement the Proposed Action would be consistent with respective State CZMPs and would not affect coastal barrier resources.
Significant Impact. Impacts to land use would be substantial. Surrounding land uses are expected to substantially change in the short and long term. The alternatives to implement the Proposed Action would not be consistent with either the surrounding land use or State CZMPs or would impact coastal barrier resources.

4.3.8.2 Land Use Planning Impacts, Preferred Alternative, Mobile Infrastructure

4.3.8.2.1 General Land Use Compatibility

PSIC-funded acquisition and deployment of mobile infrastructure would not result in any permanent establishment of facilities or functions that would constitute a type of land use. Therefore, there would be no impact to land use resulting from the Preferred Alternative.

4.3.8.2.2 Coastal Zone

PSIC-funded acquisition and deployment of mobile infrastructure would not result in the establishment of any permanent facilities. There would be no impact to the coastal zone resulting from the Preferred Alternative.

4.3.8.2.3 Coastal Barriers

PSIC-funded acquisition and deployment of mobile infrastructure would not result in the establishment of any permanent facilities. There would be no impact to coastal barriers resulting from the Preferred Alternative.

4.3.8.3 Land Use Planning Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

4.3.8.3.1 General Land Use Compatibility

Impacts to land use under Alternative 2 would be the same as those expected under the Preferred Alternative, because the acquisition and deployment of mobile infrastructure would not result in the establishment of permanent facilities.

4.3.8.3.2 Coastal Zone

Impacts to the coastal zone under Alternative 2 would be the same as those expected under the Preferred Alternative, because the acquisition and deployment of mobile infrastructure would not result in the establishment of permanent facilities and would not result in any new development in the coastal zone.

4.3.8.3.3 Coastal Barriers

Impacts to coastal barriers under Alternative 2 would be the same as those expected under the Preferred Alternative, because the acquisition and deployment of mobile infrastructure would not result in the establishment of permanent facilities and would not result in any new development on coastal barrier islands.

4.3.8.4 Land Use Planning Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no impacts to land use, the coastal zone, or coastal barriers resulting from the No Action Alternative.

4.3.9 Infrastructure

4.3.9.1 Significance Criteria

Impacts to utilities have been evaluated using the following criteria:

No Impact. Impacts to the human or natural environment would not occur, or such conditions are not present.

No Significant Impact. An impact to the human or natural environment would occur but is less than thresholds indicated below for "significant impact."

Significant Impact.

- **Electricity.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require energy in quantities that would exceed local or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy.
- **Communications.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require communication systems to meet requirements that could not be provided without major modifications to the existing systems.
- **Potable Water.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more potable water than could be reliably provided by available potable water sources, leading to shortages, or if regulatory limitations on withdrawals would potentially be exceeded.
- **Natural Gas.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more natural gas than could be reasonably provided by the existing system, leading to shortages.
- **Wastewater.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more wastewater treatment capacity than could be reliably provided by the existing wastewater treatment system, potentially leading to the discharge of effluents in excess of standards. Major shortfalls in collection capacity could also be potentially significant.

Impacts on solid waste collection and disposal have been evaluated using the following criteria:

No Impact. The alternatives to implement the Proposed Action do not affect the human or natural environment.

No Significant Impact. An effect to the human or natural environment would occur, but it is less than thresholds, indicated below, for "significant impact."
Significant Impact. Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require collection or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

Impacts on the transportation network have been evaluated using the following criteria:

No Impact. No alterations of traffic patterns and trends would occur; no additional demand would be placed on the existing transportation network.
No Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would be within the network's capacity and could be absorbed without creating disruption. Traffic patterns and trends would not undergo changes that would affect service.
Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would exceed the network's capacity, creating disruptions in service in roadways, rail, or air transportation.

4.3.9.2 Infrastructure Impacts, Preferred Alternative, Mobile Infrastructure

4.3.9.2.1 Utilities

Implementation of the Preferred Alternative would not result in significant impacts on utility quality and availability. Because of the occasional and intermittent operation of the mobile infrastructure, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts on utility quality or availability. No significant impacts to the utility services would occur because of the proposed project. Impacts associated with the acquisition and deployment of mobile infrastructure equipment would not be expected.

4.3.9.2.2 Solid Waste

The occasional and intermittent operation of mobile infrastructure is not anticipated to require separate or additional solid waste collection and disposal services. Solid waste generated by mobile infrastructure would be directed into existing waste management operations, and the amount of waste generated during normal operations would not cause a significant impact to local or regional solid waste management resources. There would be no significant impact to solid waste from the acquisition and deployment of mobile infrastructure.

4.3.9.2.3 Transportation Network

The deployment and acquisition of mobile infrastructure is not anticipated to cause short- or long-term impacts to transportation networks. Field-based training exercises with vehicle operations would occur at designated and established installations for minimal impacts to surrounding communities and associated primary and secondary roadways. Potential impacts to transportation are expected to be low, provided appropriate planning and implementation actions are taken. Existing roads should be used to the maximum extent possible. Because of the occasional and intermittent operation of the mobile infrastructure, transportation activities would not be expected to cause noticeable impacts to local transportation networks.

4.3.9.3 Infrastructure Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

4.3.9.3.1 Utilities

Impacts on utility quality and availability, as discussed from the Preferred Alternative, would not be expected, since the use of previously disturbed sites would not create the need to extend utilities to previously undeveloped areas. Impacts are not expected to be significant.

4.3.9.3.2 Solid Waste

The deployment and acquisition of mobile infrastructure would have no significant impacts to solid waste, as discussed from the Preferred Alternative. The use of previously disturbed sites would not have any impact on the amount of solid waste generated by the acquisition and deployment of mobile infrastructure.

4.3.9.3.3 Transportation Network

There would be no significant impact to transportation networks. Impacts on transportation networks similar to those discussed from the Preferred Alternative would be expected. Existing transportation networks would be used, and increases in vehicular traffic would not be significant.

4.3.9.4 Infrastructure Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no impact to utilities, solid waste, or the transportation network resulting from the No Action Alternative.

4.3.10 Socioeconomic Resources

4.3.10.1 Significance Criteria

Impacts to socioeconomic resources have been evaluated using the following criteria:

No Impact. Impacts to demographics, employment, housing, or services would not occur. No effects on low-income or minority populations would occur.
No Significant Impact. There would be some measurable changes to demographics, employment, or the demand for housing or services, but they would not impact the availability of jobs, housing, or services. There would be no disproportionate effects on low-income or minority populations.
Significant Impact. There would be measurable changes to demographics, employment, or the demand for housing or services that would impact the availability of jobs, housing, or services. There would be disproportionate impacts to low-income or minority populations.

4.3.10.2 Socioeconomic Resources Impacts, Preferred Alternative, Mobile Infrastructure

Under the Preferred Alternative, mobile infrastructure would be purchased and deployed as part of PSIC-funded projects. This increase in procurement spending would not be localized, because the funds would go to the manufacturer from whom the mobile infrastructure would be purchased and would not necessarily stay in the State or Territory in question, although there would be a very small overall increase in economic activity throughout the 50 States, 5 Territories, and the District of Columbia as the result of increased spending. There would be no significant impacts to socioeconomic resources as a result of PSIC-related spending.

Since mobile infrastructure is not place-based, there would be no significant impacts to environmental justice resulting from the Preferred Alternative. Mobile infrastructure is likely to be stored at existing emergency response facilities, and the storage of this equipment would not create any new impacts.

4.3.10.3 Socioeconomic Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

Impacts to socioeconomic resources resulting from Alternative 2 would be the same as those expected from the Preferred Alternative, because the use of previously disturbed sites would not relate to the distribution of economic activity resulting from increased spending on mobile infrastructure. There would be no significant impacts to environmental justice, since mobile

infrastructure would be stored at existing emergency response facilities, and the storage of this equipment would not create any new impacts.

4.3.10.4 Socioeconomic Resources Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. There would be no increase in economic activity, and no impacts to environmental justice resulting from the No Action Alternative.

4.3.11 Human Health and Safety

4.3.11.1 Significance Criteria

Impacts to human health and safety have been evaluated using the following criteria:

No Impact. Increases would not occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of. There would be no increase in workplace safety hazards.

No Significant Impact. Hazardous or toxic materials or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no increase in workplace safety hazards.

Significant Impact. A net increase would occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation(s). Site contamination conditions could preclude development of sites for the proposed use. Workplace hazards, such as on-the-job injuries, could increase.

4.3.11.2 Human Health and Safety Impacts, Preferred Alternative, Mobile Infrastructure

Under the Preferred Alternative, mobile infrastructure would be acquired and deployed using PSIC funds. The deployment of mobile infrastructure could have adverse safety impacts, because it would potentially require vehicles to travel on public roadways above posted speed limits and sharing the road with civilian drivers. These impacts would not be significant.

The handling, use, and storage of petroleum, oils, and lubricants that may be required to maintain and power mobile infrastructure and generators could have an adverse impact to human health and safety in the event of a spill. The amounts of these materials likely to be present would be small, and no significant impact to human health and safety is expected as a result of hazardous substances. If no spills occur, there would be no impact to human health and safety as a result of these substances.

Mobile infrastructure would help public safety agencies and officials to better communicate and respond to an emergency event and would therefore have an overall beneficial impact to human health and safety.

4.3.11.3 Human Health and Safety Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile Infrastructure

The impacts to human health and safety associated with Alternative 2 are more adverse than those expected under the Preferred Alternative. The use of previously disturbed sites to store mobile infrastructure would not contribute to improper handling, storage, use, or disposal of hazardous wastes, nor would it present a hazard to worker safety. However, proposed project sites are selected on the basis of their ability to increase service to an underserved area. A requirement to use only those sites that have been previously disturbed may reduce the distribution of mobile infrastructure, increasing response time in underserved areas. These impacts are not expected to be significant and would not be outweighed by the benefits yielded

by improvements to the capabilities of public safety agencies to communicate and respond in the event of an emergency.

4.3.11.4 Human Health and Safety Impacts, No Action Alternative, Mobile Infrastructure

Under the No Action Alternative, the acquisition and deployment of mobile infrastructure would not be implemented. The area would be maintained with its existing mobile infrastructure, facilities, and operations. Under this alternative, interoperability gaps would persist, compromising the ability of first responders to respond effectively and rapidly to emergency situations. There would be adverse impacts to human health and safety resulting from the No Action Alternative.

4.4 ENVIRONMENTAL CONSEQUENCES – MOBILE AND PORTABLE EQUIPMENT

The implementation of the Proposed Action or one of its alternatives has the potential to impact environmental resources throughout the 50 States, 5 Territories, and the District of Columbia. This section identifies and evaluates the environmental impacts associated with each alternative for implementing the Mobile and Portable Equipment Proposed Action and with the No Action Alternative.

Acquisition of mobile and portable communication devices by communities and for the strategic technology reserve will allow first responders to communicate better and faster in the wake of an event. It will also enable more responders to be able to communicate. Mobile and portable equipment includes handheld radios, satellite phones, radio caches, battery packs, and chargers. The equipment will be deployed to existing personnel and vehicles or be stored at emergency responder locations. No new construction is anticipated for this equipment, so construction-related impacts are irrelevant and will not be evaluated.

4.4.1 Noise

4.4.1.1 Significance Criteria

Impacts to noise have been evaluated using the following criteria:

No Impact. Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.
No Significant Impact. Noise levels resulting from alternatives to implement the Proposed Action would exceed natural sounds, as described under no impact, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature.
Significant Impact. Noise levels would exceed typical noise levels from construction equipment and generators permanently or for a prolonged period of time.

4.4.1.2 Noise Impacts, Preferred Alternative, Mobile and Portable Equipment

Implementation of the Preferred Alternative would not result in the introduction of significant noise-generating sources into the environment, nor would it increase or alter the existing levels of primary noise sources. Impacts associated with the acquisition and deployment of subscriber units and similar equipment, including mobile and portable equipment such as handheld and mobile radios and satellite phones, would not be expected.

4.4.1.3 Noise Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

Implementation of Alternative 2 would not result in the introduction of significant noise-generating sources into the environment, nor would it increase or alter the existing levels of primary noise sources. Impacts associated with the acquisition and deployment of subscriber units and similar equipment, including mobile and portable equipment such as handheld and mobile radios and satellite phones, would not be expected.

4.4.1.4 Noise Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, the acquisition and deployment of mobile and portable equipment would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. There would be no adverse impacts on the ambient noise environment resulting from the No Action Alternative.

4.4.2 Air Quality

4.4.2.1 Significance Criteria

Impacts to air quality have been evaluated using the following criteria:

No Impact. Impacts to air quality would not occur as a result of the action.
No Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas are less than exceedance levels, as defined in Table 3-3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Projects are *de minimis* or conform to SIP in nonattainment and maintenance areas.
Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas would be greater than the exceedance levels. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS. Projects do not conform to SIP in nonattainment and maintenance areas.

4.4.2.2 Air Quality Impacts, Preferred Alternative, Mobile and Portable Equipment

Acquisition and deployment air quality impacts would be related to shipment of the equipment from the manufacturer's location or distribution center to the deployment site. The quantities of equipment are not expected to result in additional truck trips. There could be a minor increase in emissions from hauling slightly heavier loads; however, this is not expected to result in an increase in criteria air pollutants greater than the exceedance levels.

There will be no significant impact to air quality from acquisition and deployment of mobile and portable equipment.

4.4.2.3 Air Quality Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

The air quality impacts for this alternative are the same as the Preferred Alternative, because the purchase and deployment of equipment is not place-based. The use of previously disturbed sites does not affect the extent of air quality impacts.

4.4.2.4 Air Quality Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, there would be no equipment purchased or deployed. Therefore, there would be no increase in shipping or trucking frequency or load weight as a result of PSIC-funded projects. There would be no increase in air quality impacts resulting from the No Action Alternative.

4.4.3 Geology and Soils

4.4.3.1 Significance Criteria

Impacts to geology and soils have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.
No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be

small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.4.3.2 Geology and Soils Impacts, Preferred Alternative, Mobile and Portable Equipment

The acquisition and deployment of subscriber units and similar equipment would not involve any construction or other ground-disturbing activities. Since there would also be no ground disturbance resulting from the operation of this mobile and portable equipment, there would be no impact to geology, soils, or prime and unique farmlands resulting from the Preferred Alternative.

4.4.3.3 Geology and Soils Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

The acquisition and deployment of subscriber units and similar equipment for previously disturbed sites would not involve any construction or other ground-disturbing activities. Since there would also be no ground disturbance resulting from the operation of this mobile and portable equipment, there would be no impact to geology, soils, or prime and unique farmlands resulting from Alternative 2.

4.4.3.4 Geology and Soils Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, the PSIC-funded projects would not take place, including the acquisition and deployment of mobile and portable equipment. There would be no impacts to geology and soils, including prime and unique farmlands, resulting from the No Action Alternative.

4.4.4 Water Resources

4.4.4.1 Significance Criteria

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.4.4.2 Water Resources Impacts, Preferred Alternative, Mobile and Portable Equipment

4.4.4.2.1 Surface Water and Groundwater

There will be no impact on water quality from acquisition and deployment of mobile and portable equipment.

4.4.4.2.2 Floodplains

There will be no impact on floodplains from the acquisition and deployment of mobile and portable equipment.

4.4.4.3 Water Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

4.4.4.3.1 Surface Water and Groundwater

Impacts to surface water and groundwater for this alternative would be similar to those of the Preferred Alternative.

4.4.4.3.2 Floodplains

Impacts to floodplains for this alternative would be similar to those of the Preferred Alternative.

4.4.4.4 Water Resources Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, there would be no acquisition or deployment of mobile and portable equipment. There would be no impacts to water resources or floodplains resulting from the No Action Alternative.

4.4.5 Biological Resources

4.4.5.1 Significance Criteria

Impacts to wildlife, wildlife habitat, and vegetation have been evaluated using the following criteria:

No Impact. Impacts to native species, their habitats, or the natural processes sustaining them would not occur, or conditions do not exist for impacts to occur.
No Significant Impact. Impacts to native species, their habitats, or the natural processes sustaining them as a result of alternatives to implement the Proposed Action would be detectable but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.
Significant Impact. Impacts from alternatives to implement the Proposed Action on native species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to Federally listed threatened and endangered species have been evaluated using terminology defined under the ESA as follows:

No effect. Listed species or designated critical habitat would not be affected *or* listed species or designated critical habitats are not present.
May affect / not likely to adversely affect. Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of “not likely to adversely affect.”
May affect / likely to adversely affect. An adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternatives to implement the Proposed Action or its interrelated or independent actions, and the effect is neither discountable nor insignificant; nor is it beneficial. The conclusion that a proposed project is “likely to adversely affect” requires initiation of formal Section 7 consultation and may also require the preparation of an EIS.

Likely to jeopardize proposed species / adversely modify proposed critical habitat. Situations are identified in which the alternatives to implement the Proposed Action could jeopardize a proposed species or adversely modify critical habitat to a species. If this criterion is reached, conference is required with FWS or NMFS, and the preparation of an EIS may also be required.

4.4.5.2 Biological Resources Impacts, Preferred Alternative, Mobile and Portable Equipment

4.4.5.2.1 Wildlife, Wildlife Habitat, and Vegetation

Impacts to wildlife, wildlife habitat, and vegetation associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected because of the very small scale of equipment and the corresponding low impacts to the environment.

4.4.5.2.2 Migratory Birds

Impacts to migratory birds associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not occur because of the very small scale of equipment and the corresponding low impacts to the environment.

4.4.5.2.3 Threatened and endangered species

Impacts to listed species or designated critical habitat associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected because of the very small scale of equipment and the corresponding low impacts to the environment

4.4.5.2.4 Wetlands

Impacts to wetlands associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not occur because of the very small scale of equipment and the corresponding low impacts to the environment.

4.4.5.3 Biological Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

4.4.5.3.1 Wildlife, Wildlife Habitat, and Vegetation

Under Alternative 2, impacts to wildlife, wildlife habitat, and vegetation associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected.

4.4.5.3.2 Migratory Birds

Impacts to migratory birds associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected under Alternative 2.

4.4.5.3.3 Threatened and Endangered Species

Impacts to a listed species or designated critical habitat associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected under Alternative 2.

4.4.5.3.4 Wetlands

Impacts to wetlands associated with the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected under Alternative 2.

4.4.5.4 Biological Resources Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, PSIC-funded projects for the acquisition and deployment of subscriber units and similar equipment, including mobile and portable equipment, would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. There would be no significant impacts on vegetation, wildlife, migratory birds, threatened and endangered species, or wetlands resulting from the No Action Alternative.

4.4.6 Historic and Cultural Resources

4.4.6.1 Significance Criteria

Impacts to historic and cultural resources have been evaluated using the following criteria:

No Impact. Impacts to any NRHP eligible or listed properties, or TCPs, would not occur, or such conditions are not present.
No Significant Impact. The historic characteristics or setting of an NRHP eligible or listed property are altered, or have the potential to be altered, but the resource retains its integrity (equates to *no adverse effect* under Section 106). The traditional, cultural, or religious significance to Native peoples of a TCP will not be compromised or diminished.
Significant Impact. The integrity of an NRHP eligible or listed property would be diminished or destroyed (equates to *adverse effect* under Section 106). The traditional, cultural, or religious significance of a TCP to Native peoples would be destroyed.

4.4.6.2 Historic and Cultural Resources Impacts, Preferred Alternative, Mobile and Portable Equipment

The acquisition and deployment of subscriber units and similar equipment would not involve any construction, other ground-disturbing activities, external renovations to structures, or installation of any permanent fixed structures or buildings. Therefore, there would be no impacts on archaeological resources, architectural resources, or TCPs resulting from the Preferred Alternative.

4.4.6.3 Historic and Cultural Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

The acquisition and deployment of subscriber units and similar equipment would not involve any construction, other ground-disturbing activities, external renovations to structures, or installation of any permanent fixed structures or buildings. Therefore, there would be no impacts on archaeological resources, architectural resources, or TCPs resulting from Alternative 2.

4.4.6.4 Historic and Cultural Resources Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, PSIC-funded projects would not be implemented, and existing equipment would be used and maintained. There would be no impacts on archaeological resources, architectural resources, or TCPs resulting from the No Action Alternative.

4.4.7 Aesthetic and Visual Resources

4.4.7.1 Significance Criteria

No Impact. Impacts to the viewshed of any historic resources or the aesthetic character of the surrounding area would not occur, or such conditions are not present.

No Significant Impact. No permanent direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action would be expected. Any visual disturbances that alter the character of the viewshed or aesthetic character of the surrounding area would be temporary, and the area would be returned to its original state following the action.
Significant Impact. Direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action are anticipated, and these effects would be greater in number, extent, or duration than nonsignificant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.4.7.2 Aesthetic and Visual Resources Impacts, Preferred Alternative, Mobile and Portable Equipment

Impacts to aesthetic and visual resources resulting from the acquisition and deployment of subscriber units and similar equipment—including mobile and portable equipment such as handheld and mobile radios and satellite phones—would not be expected. The Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to aesthetic and visual resources. No significant impacts to the local environment would occur because of the proposed project.

4.4.7.3 Aesthetic and Visual Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

Impacts to aesthetics and visual resources for Alternative 2 would be the same as those under the Preferred Alternative.

4.4.7.4 Aesthetic and Visual Resources Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no acquisition or deployment of mobile and portable equipment. There would be no impact to aesthetic or visual resources resulting from the No Action Alternative.

4.4.8 Land Use Planning

4.4.8.1 Significance Criteria

No Impact. Impacts to existing land use patterns would not occur.
No Significant Impact. Impacts to land use would be measurable or perceptible but would be limited to a relatively small change in land use that is still compatible with surrounding or planned land uses. The alternatives to implement the Proposed Action would be consistent with respective State CZMPs and would not affect coastal barrier resources.
Significant Impact. Impacts to land use would be substantial. Surrounding land uses are expected to substantially change in the short and long term. The alternatives to implement the Proposed Action would not be consistent with either the surrounding land use or State CZMPs or would impact coastal barrier resources.

4.4.8.2 Land Use Planning Impacts, Preferred Alternative, Mobile and Portable Equipment

4.4.8.2.1 General Land Use Compatibility

PSIC-funded acquisition and deployment of mobile and portable equipment would not result in any permanent establishment of facilities or functions that would constitute a type of land use. Therefore, there would be no impact to land use resulting from the Preferred Alternative.

4.4.8.2.2 Coastal Zone

PSIC-funded acquisition and deployment of mobile and portable equipment would not result in the establishment of any permanent facilities. There would be no impact to the coastal zone resulting from the Preferred Alternative.

4.4.8.2.3 Coastal Barriers

PSIC-funded acquisition and deployment of mobile and portable equipment would not result in the establishment of any permanent facilities. There would be no impact to coastal barriers resulting from the Preferred Alternative.

4.4.8.3 Land Use Planning Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

4.4.8.3.1 General Land Use Compatibility

Impacts to land use would be the same under Alternative 2 as those expected under the Preferred Alternative.

4.4.8.3.2 Coastal Zone

Impacts to the coastal zone would be the same under Alternative 2 as those expected under the Preferred Alternative.

4.4.8.3.3 Coastal Barriers

Impacts to coastal barriers would be the same under Alternative 2 as those expected under the Preferred Alternative.

4.4.8.4 Land Use Planning Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, there would be no PSIC-funded acquisition or deployment of mobile and portable equipment. There would be no impacts to land use, the coastal zone, or coastal barriers resulting from the No Action Alternative.

4.4.9 Infrastructure

4.4.9.1 Significance Criteria

Impacts to utilities have been evaluated using the following criteria:

No Impact. Impacts to the human or natural environment would not occur, or such conditions are not present.

No Significant Impact. An impact to the human or natural environment would occur but is less than thresholds indicated below for “significant impact.”

Significant Impact.

- **Electricity.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require energy in quantities that would exceed local or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy.
- **Communications.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require communication systems to meet requirements that could not be provided without major modifications to the existing systems.
- **Potable Water.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more potable water than could be reliably provided by available potable water sources, leading to shortages, or if regulatory limitations on withdrawals would potentially be exceeded.
- **Natural Gas.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more natural gas than could be reasonably provided by the existing system, leading to shortages.

– **Wastewater.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more wastewater treatment capacity than could be reliably provided by the existing wastewater treatment system, potentially leading to the discharge of effluents in excess of standards. Major shortfalls in collection capacity could also be potentially significant.

Impacts on solid waste collection and disposal have been evaluated using the following criteria:

No Impact. The alternatives to implement the Proposed Action do not affect the human or natural environment.
No Significant Impact. An effect to the human or natural environment would occur, but it is less than thresholds, indicated below, for "significant impact."
Significant Impact. Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require collection or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

Impacts on the transportation network have been evaluated using the following criteria:

No Impact. No alterations of traffic patterns and trends would occur; no additional demand would be placed on the existing transportation network.
No Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would be within the network's capacity and could be absorbed without creating disruption. Traffic patterns and trends would not undergo changes that would affect service.
Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would exceed the network's capacity, creating disruptions in service in roadways, rail, or air transportation.

4.4.9.2 Infrastructure Impacts, Preferred Alternative, Mobile and Portable Equipment

4.4.9.2.1 Utilities

Implementation of the Preferred Alternative would not result in significant impacts on utility quality and availability. The acquisition and deployment of mobile and portable equipment under the Preferred Alternative are not anticipated to cause adverse short- or long-term impacts on utility quality or availability.

4.4.9.2.2 Solid Waste

There will be no significant impact on solid waste as a result of the acquisition and deployment of mobile and portable equipment. The use and storage of batteries to power equipment could introduce hazardous substances—lead, from lead-acid batteries, and cadmium, from nickel-cadmium batteries, among others—into the environment. Impacts to the solid waste stream are not expected to be significant because all procured equipment would meet regulatory specifications with respect to hazardous materials. Older equipment and dead batteries being replaced will be recycled or disposed of properly as part of existing solid waste management practices.

4.4.9.2.3 Transportation Network

There will be no impact on transportation networks resulting from the acquisition and deployment of mobile and portable equipment resulting from the need to deliver additional equipment.

4.4.9.3 Infrastructure Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

4.4.9.3.1 Utilities

Impacts on utility quality and availability as discussed from the Preferred Alternative would be expected.

4.4.9.3.2 Solid Waste

The deployment and acquisition of mobile and portable equipment would be the same as for the Preferred Alternative, and would have no significant impact to solid waste.

4.4.9.3.3 Transportation Network

There would be no significant impact to transportation networks resulting from the deployment and acquisition of mobile and portable equipment.

4.4.9.4 Infrastructure Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no deployment and acquisition of mobile and portable equipment. There would be no impact to utilities, solid waste, or the transportation network resulting from the No Action Alternative.

4.4.10 Socioeconomic Resources

4.4.10.1 Significance Criteria

Impacts to socioeconomic resources have been evaluated using the following criteria:

No Impact. Impacts to demographics, employment, housing, or services would not occur. No effects on low-income or minority populations would occur.

No Significant Impact. There would be some measurable changes to demographics, employment, or the demand for housing or services, but they would not impact the availability of jobs, housing, or services. There would be no disproportionate effects to low-income or minority populations.

Significant Impact. There would be measurable changes to demographics, employment, or the demand for housing or services that would impact the availability of jobs, housing, or services. There would be disproportionate impacts to low-income or minority populations.

4.4.10.2 Socioeconomic Resources Impacts, Preferred Alternative, Mobile and Portable Equipment

Under the Preferred Alternative, mobile and portable equipment would be purchased and deployed as part of PSIC-funded projects. This increase in procurement spending would not be localized, as the spending would go to the manufacturer from whom the mobile and portable equipment would be purchased, and would not necessarily stay within the State or Territory in question. However, there would be a very small overall increase in economic activity throughout the 50 States, 5 Territories, and the District of Columbia as the result of increased spending. There would be no significant impacts to socioeconomic resources as a result of PSIC-related spending.

Since mobile and portable equipment are not place-based, there would be no impacts to environmental justice under the Preferred Alternative.

4.4.10.3 Socioeconomic Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

Impacts to socioeconomic resources would be expected to be the same under Alternative 2 as the Preferred Alternative.

4.4.10.4 Socioeconomic Resources Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, no PSIC-funded procurement of mobile and portable equipment would be take place, and no PSIC-related spending would take place. Under this alternative, there would be no increase in economic activity, and no impacts to environmental justice.

4.4.11 Human Health and Safety

4.4.11.1 Significance Criteria

Impacts to human health and safety have been evaluated using the following criteria:

No Impact. Increases in the amount of hazardous or toxic materials or wastes to be handled, stored, used, or disposed of would not occur. There would be no increase in workplace safety hazards.

No Significant Impact. Hazardous or toxic materials or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no increase in workplace safety hazards.

Significant Impact. A net increase would occur in the amount of hazardous or toxic materials or wastes to be handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation(s). Site contamination conditions could preclude development of sites for the proposed use. Workplace hazards, such as on-the-job injuries, could increase.

4.4.11.2 Human Health and Safety Impacts, Preferred Alternative, Mobile and Portable Equipment

Under the Preferred Alternative, PSIC-funds would be used to purchase and deploy mobile and portable infrastructure. The use and storage of batteries to power equipment could introduce hazardous substances—lead, from lead-acid batteries, and cadmium, from nickel-cadmium batteries, among others—into the environment. Impacts to human health and safety are not expected to be significant, because all procured equipment would meet regulatory specifications for hazardous materials. If batteries, chargers, and other similar equipment are recycled or properly disposed of when they reach the end of their useful life, impacts to human health and safety would be further reduced.

Mobile and portable equipment would help public safety agencies and officials to better communicate in the event of an emergency and would therefore have a beneficial impact to human health and safety

4.4.11.3 Human Health and Safety Impacts, Alternative 2 (Previously Disturbed Sites Only), Mobile and Portable Equipment

The impacts to human health and safety associated with Alternative 2 are the same as those expected under the Preferred Alternative.

4.4.11.4 Human Health and Safety Impacts, No Action Alternative, Mobile and Portable Equipment

Under the No Action Alternative, no mobile or portable equipment would be purchased and deployed. Existing gaps in interoperable communications would continue, and the ability of first responders to respond effectively and rapidly to emergency situations would continue to be compromised. There would be adverse impacts to human health and safety as a result of the No Action Alternative.

4.5 ENVIRONMENTAL CONSEQUENCES — PLANNING, TRAINING, AND EXERCISES

The implementation of the Proposed Action or one of its alternatives has the potential to impact environmental resources throughout the 50 States, 5 Territories, and the District of Columbia. This section identifies and evaluates the environmental impacts associated with the alternatives to implement the Planning, Training, and Exercises Proposed Action and the No Action Alternative.

Planning, training, and field exercises are necessary to ensure that all parties understand the SOPs and protocols for effective and efficient public safety actions and emergency response. This is especially important for larger scale events involving multiple response agencies. Understanding the procedures is only the first step in the training process. Although this can be achieved in the classroom, there is no substitute for practice in the real world under simulated emergency conditions. Hands-on training and exercises are the best ways to accomplish this. Exercises frequently involve deployment of mobile command centers and other emergency equipment. Planning, training, and exercises would occur at existing locations. No construction would be anticipated for these activities; therefore, construction-related impacts are not evaluated. Exercises to be conducted at previously undisturbed sites that would involve ground disturbance of 1 acre or more would require preparation of a site-specific EA.

4.5.1 Noise

4.5.1.1 Significance Criteria

Impacts to noise have been evaluated using the following criteria:

No Impact. Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.
No Significant Impact. Noise levels resulting from alternatives to implement the Proposed Action would exceed natural sounds, as described under no impact, but would not exceed typical noise levels from construction equipment or generators. Noise generated by construction and operation of the facility would be temporary or short-term in nature.
Significant Impact. Noise levels would exceed typical noise levels from construction equipment and generators permanently or for a prolonged period of time.

4.5.1.2 Noise Impacts, Preferred Alternative, Planning, Training, and Exercises

Implementation of the Preferred Alternative would not result in the long-term operation of significant noise-generating sources, nor would it increase or alter the existing levels of primary noise sources. If noise from emergency response vehicles had the potential to impact the surrounding community, mitigation measures would be taken and the local community informed before initiating field-based exercises. Field-based training exercises with vehicle operations would occur at designated and established locations or installations with minimal noise impacts to surrounding communities.

As explained in Section 3.1.2, backup generators provide electric power as needed. Mobile command centers operate on the grid when it is available and use generators when it is not. If generators are used, there could be a short-term increase in the ambient noise levels during training exercises. As a result of the occasional and intermittent operation of backup generators during training exercises, the Preferred Alternative is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. No significant long-term impacts to the average ambient noise level will occur because of the proposed project.

There would be no impacts to ambient noise levels as a result of planning and classroom-based training activities.

4.5.1.3 Noise Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Similar to the Preferred Alternative, implementation of field-based training activities under Alternative 2 would not result in the long-term operation of significant noise-generating sources, although mitigation may be required to address noise impacts of emergency vehicles.

Backup generator operation would be similar to that in the Preferred Alternative. Alternative 2 is not anticipated to cause adverse long-term impacts or measurably increase the ambient noise levels. No significant long-term impacts to the average ambient noise level will occur because of the proposed project.

There would be no impacts to ambient noise levels as a result of planning and classroom-based training activities.

4.5.1.4 Noise Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, the PSIC-funded planning, training, and exercises would not be conducted. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. There would be no adverse impacts on the ambient noise environment resulting from the No Action Alternative.

4.5.2 Air Quality

4.5.2.1 Significance Criteria

Impacts to air quality have been evaluated using the following criteria:

No Impact. Impacts to air quality would not occur as a result of the action.
No Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas are less than exceedance levels, as defined in Table 3-3. Emissions in attainment areas would not cause air quality to go out of attainment for any NAAQS. Projects are *de minimis* or conform to SIP in nonattainment and maintenance areas.
Significant Impact. Emissions of criteria air pollutants, as defined in the NAAQS, from alternatives to implement the Proposed Action in nonattainment and maintenance areas would be greater than the exceedance levels. Emissions in attainment areas would cause an area to be out of attainment for any NAAQS. Projects do not conform to SIP in nonattainment and maintenance areas.

4.5.2.2 Air Quality Impacts, Preferred Alternative, Planning, Training, and Exercises

Planning and classroom training would no impact on air quality. The use of backup generators during exercises would cause a minor air quality impact, and localized impacts from dust could occur if the exercise is held on bare soil. Most field training exercises are less than a day long, but a national exercise could last up to 3 days. Emergency vehicles participating in the exercise would cause a minor increase in emissions, but they would be primarily localized and of short duration.

Emissions can be reduced by installing emission control devices on the generators; using biodiesel, liquid propane or compressed natural gas instead of diesel fuel; using low or ultra-low sulfur diesel fuel; and properly maintaining the generator and vehicles. Dust can be controlled by using vegetated or paved areas for the exercises.

There would be no impacts to air quality as a result of planning and classroom-based training activities. No significant air quality impacts are expected from field-based training exercises.

4.5.2.3 Air Quality Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Air quality impacts for Alternative 2 would be similar to those of Preferred Alternative. There would be no significant impacts to air quality resulting from field-based training activities, and there would be no impacts to air quality as a result of planning and classroom-based training activities.

4.5.2.4 Air Quality Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, there would be no PSIC-funded planning, classroom-based training, or field-based training exercises. Since there would be no increase in vehicular traffic, no need for backup generators to support the activities and therefore no increase in emissions, there would be no air quality impacts resulting from the No Action Alternative.

4.5.3 Geology and Soils

4.5.3.1 Significance Criteria

Impacts to geology and soils have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.5.3.2 Geology and Soils Impacts, Preferred Alternative, Planning, Training, and Exercises

Field-based training exercises may have the potential to adversely impact geology and soils. Factors affecting the degree to which these resources would be affected depend on the number of individuals participating in the training, the frequency of the training, the specific activities required, and any particular infrastructure, materials, equipment, or technology that may be required to make the field-based training useful and meaningful. Movements of people and equipment on unpaved or vegetated sites could result in degradation of vegetative soil cover, soil compaction, and soil erosion. For projects involving these activities, once the exact parameters of field-based training exercises are identified, a site-specific analysis would be required to determine the exact nature and extent of impacts. Impacts will vary by topography, soil type, and other characteristics of the respective physiographic region in which the proposed field-based training exercises would take place; however, impacts are not expected to be significant.

Any PSIC-funded field-based training exercises that would convert prime or unique farmlands from agricultural use through development would comply with the FPPA, as identified in Section 3.3.1. The USDA would be consulted to determine whether mitigation would be required.

Movements of people and equipment on existing, paved roads, and surfaces would have no impact on geology and soils under the Preferred Alternative.

There would be no impacts to geology and soils as a result of planning and classroom-based training activities.

4.5.3.3 Geology and Soils Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Impacts from field-based training exercises under Alternative 2 would be somewhat less than those of the Preferred Alternative, since previously undisturbed sites would not be used, thereby avoiding potential degradation of pristine geologic and soil resources. As with the Preferred Alternative, once the exact parameters of field-based training exercises are identified, a site-specific analysis would be required to determine the exact nature and extent of impacts. Impacts are not expected to be significant.

Movements of people and equipment on existing, paved roads, and surfaces will have no impact on geology and soils under Alternative 2.

There would be no impacts to geology and soils as a result of planning and classroom-based training activities.

4.5.3.4 Geology and Soils Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, there would be no PSIC-funded implementation of planning, training, and exercises. There would be no impact to geology and soils resulting from the No Action Alternative.

4.5.4 Water Resources

4.5.4.1 Significance Criteria

Impacts to water resources have been evaluated using the following criteria:

No Impact. Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to geology, topography, or soils as a result of alternatives to implement the Proposed Action would be detectable. Impacts to undisturbed areas would be small. Steps would need to be taken to minimize adverse impacts and would be relatively simple to implement.

Significant Impact. Impacts on geology, topography, or soils as a result of alternatives to implement the Proposed Action would be readily apparent and result in a change to the character of the resource over a relatively wide area. Steps, which may or may not be successful, would need to be taken to minimize adverse impacts.

4.5.4.2 Water Resources Impacts, Preferred Alternative, Planning, Training, and Exercises

4.5.4.2.1 Surface Water and Groundwater

Planning and classroom-based training will have no impact on water quality.

Field-based training exercises have the potential to adversely impact water quality through increased erosion and runoff. Erosion could occur if field-based training exercises are held on bare soil, or if those exercises contribute to increased erosion and runoff by degrading vegetative cover so that more bare soil is exposed. Most exercises last less than 1 day, but a national exercise could potentially last up to 3 days and may possibly require a permit. Emergency vehicles participating in the exercise could also increase the potential for erosion if used off-road.

Erosion can be reduced by utilizing vegetated or paved areas for the exercises. Silt barriers could be installed, if the exercise were to take place during a rainy period. If the exercise damages vegetation at the site, it should be restored as soon as practicable.

No significant water quality impacts are expected from field-based training exercises.

4.5.4.2.2 Floodplains

Planning, training, and exercises do not fall into the category of critical actions as defined under EO 11988; therefore, they are held to the 100-year floodplain standard instead of the 500-year floodplain standard that applies to towers and operations and response centers. There would be no impacts to floodplains from planning and classroom-based training, which are expected to take place in existing facilities, nor from field-based training exercises, since they would not require construction of any structures in a 100-year floodplain.

4.5.4.3 Water Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

4.5.4.3.1 Surface Water and Groundwater

The water quality impacts for Alternative 2 would be similar to those for the Preferred Alternative but may have a less adverse impact because of the use of previously disturbed sites. There would be no significant impacts to water resources resulting from field-based training activities, and there would be no impacts to water resources as a result of planning and classroom-based training activities.

4.5.4.3.2 Floodplains

Impacts to floodplains for Alternative 2 would be similar to those expected under the Preferred Alternative.

4.5.4.4 Water Resources Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, there would be no PSIC-funded planning, classroom-based training, or field-based training exercises. No exercises would be conducted on bare soil or vegetated areas by either personnel or emergency vehicles, and there would be no resulting increase in runoff. Therefore, there would be no increase in impacts to either water resources or floodplains resulting from the No Action Alternative.

4.5.5 Biological Resources

4.5.5.1 Significance Criteria

Impacts to wildlife, wildlife habitat, and vegetation have been evaluated using the following criteria:

No Impact. Impacts to native species, their habitats, or the natural processes sustaining them would not occur, or conditions do not exist for impacts to occur.

No Significant Impact. Impacts to native species, their habitats, or the natural processes sustaining them as a result of alternatives to implement the Proposed Action would be detectable but would not be expected to be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Impact. Impacts from alternatives to implement the Proposed Action on native species, their habitats, or the natural processes sustaining them would be detectable and would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to Federally listed threatened and endangered species have been evaluated using terminology defined under the ESA as follows:

No effect. Listed species or designated critical habitat would not be affected *or* listed species or designated critical habitats are not present.
May affect / not likely to adversely affect. Effects on listed species or designated critical habitat are insignificant, discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or beneficial. During consultation, FWS or NMFS provides written concurrence of "not likely to adversely affect."
May affect / likely to adversely affect. An adverse effect to a listed species or designated critical habitat may occur as a direct or indirect result of the alternatives to implement the Proposed Action or its interrelated or independent actions, and the effect is neither discountable nor insignificant; nor is it beneficial. The conclusion that a proposed project is "likely to adversely affect" requires initiation of formal Section 7 consultation and may also require the preparation of an EIS.
Likely to jeopardize proposed species / adversely modify proposed critical habitat. Situations are identified in which the alternatives to implement the Proposed Action could jeopardize a proposed species or adversely modify critical habitat to a species. If this criterion is reached, conference is required with FWS or NMFS, and the preparation of an EIS may also be required.

4.5.5.2 Biological Resources Impacts, Preferred Alternative, Planning, Training, and Exercises

4.5.5.2.1 Wildlife, Wildlife Habitat, and Vegetation

Short-term minor adverse impacts on wildlife, habitats, and vegetation would be expected because of PSIC-funded planning, classroom-based training, and field-based exercises. Field-based training and exercises may result in the disturbance of habitats and wildlife. Potential adverse impacts on vegetation and wildlife associated with personnel and vehicle operations would vary, depending on the characteristics of the PSIC-funded project and training exercise. Activities planned in an urbanized environment would be expected to have less potential for adverse impacts on native vegetation than activities in rural (naturally vegetated) areas. Short-term minor impacts would largely be localized to the immediate project area. In general, the significance of disturbed vegetation resulting from a PSIC-funded field-based training exercise would depend on the amount of area disturbed, the types of plant communities (and habitats) that would be affected, the nature of the impact, and the capacity for the disturbed habitat to recover. These factors would determine whether the training exercises impacts to vegetation would be short or long term.

Similar to vegetation, wildlife may be affected during training and exercise activities. The wildlife that could be affected would depend on the physiographic region in which the PSIC-funded project is planned and the nature and extent of the habitats at the project area and surrounding vicinity. Field-based training and exercises may adversely affect wildlife by potentially reducing, altering, or fragmenting available habitat; introducing invasive species; causing injury or mortality to wildlife; noise; and behavioral impacts. The overall impact of these activities on wildlife populations would depend on the type and amount of wildlife habitat that would be disturbed, the nature of the disturbance (i.e., permanent or temporary) and the wildlife that occupy the project site and surrounding areas. Personnel and vehicle operations may create disturbances in surrounding communities. Training exercises with vehicle operations would occur at designated and established installations with minimal impacts to surrounding wildlife communities and vegetation. However, potential adverse impacts on wildlife species sensitive to disturbance could result from temporary noise generated by the training and exercises. This

temporary noise disturbance would be minor, and species sensitive to the disturbance would be expected to retreat from the immediate location and associated personnel and equipment. Field-based training exercises may result in mortality of some less mobile species (i.e., reptiles, amphibians, and small mammals) and may affect local wildlife by disturbing normal behavioral activities such as foraging, mating, and nesting. Most wildlife would be expected to relocate from areas in or immediately surrounding the training and exercises area and would be expected to return to the area after completion of the training activities.

Because of the occasional and intermittent schedule of training and exercises, the Preferred Alternative is not anticipated to cause adverse long-term impacts to the local environment, wildlife, and vegetation. Impacts from the training and exercises would be expected to have no significant impact on wildlife, wildlife habitat, and vegetation.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to wildlife, wildlife habitat, and vegetation as a result of planning and classroom-based training activities.

4.5.5.2.2 Migratory Birds

Implementation of the Preferred Alternative would not result in the long-term operation of project activities, nor would it alter the existing environment. Personnel and vehicle operations related to field-based training activities may create disturbances in surrounding communities. However, training exercises with vehicle operations would occur at designated and established locations with minimal impacts to migratory birds. Potential adverse impacts on migratory birds could result from temporary noise generated by the field-based training and exercises. This temporary noise disturbance would be minor and migratory birds in the area would be expected to retreat from the immediate location and associated personnel and equipment. Because of the occasional and intermittent schedule of field-based training and exercises, the Preferred Alternative is not anticipated to cause adverse long-term impacts to migratory birds. Impacts from the training and exercises would be expected to have no significant impact on migratory birds.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to migratory birds as a result of planning and classroom-based training activities.

4.5.5.2.3 Threatened and Endangered Species

Implementation of the Preferred Alternative would not result in the long-term operation of project activities, nor would it alter the existing environment. Training and exercises could affect threatened, endangered, and sensitive species in the same manner that vegetation and wildlife would be affected. Training exercises with vehicle and personnel operations would occur at designated and established installations with minimal impacts to the surrounding environment.

The PSIC-funded projects may have some flexibility in the siting of training and exercises and would seek to avoid sensitive and unique species and associated habitats. In addition, because of the regulatory requirements of the ESA, State regulations, and other resource-specific regulations and guidelines, coordination with FWS and NMFS would be required. Whether the proposed activities for a project are likely to adversely affect a Federally listed threatened or endangered species would be determined on the basis of project-specific correspondence with FWS or NMFS, once proposed project locations are finalized. The determination of potential adverse impacts on State-listed species would also be project-specific. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination would occur with the FWS or the NMFS under Section 7 of the ESA to ensure minimization or avoidance of any potential adverse impacts.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to threatened and endangered species as a result of planning and classroom-based training activities.

4.5.5.2.4 Wetlands

Impacts from field-based training exercises would be expected to have no significant impact on wetlands. Training exercises with vehicle operations would occur at designated and established locations with minimal impacts to surrounding wetlands. Consistent with EO 11990, the PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize adverse impacts.

PSIC-funded projects may have flexibility in the siting of training and exercises and would seek to avoid wetland habitats. As the locations of the PSIC-funded projects have not been finalized, additional site-specific analysis would be conducted, as appropriate, with the identification of the proposed site location and before initial planning and design. The site-specific analysis would further evaluate potential impacts on wetlands on the basis of specific project design and location.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to wetlands as a result of planning and classroom-based training activities.

4.5.5.3 Biological Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

4.5.5.3.1 Wildlife, Wildlife Habitat, and Vegetation

Short-term minor adverse impacts on wildlife, habitats, and vegetation would be expected as a result of PSIC-funded field-based training exercises under Alternative 2. Impacts on wildlife and vegetation would be somewhat less than those for the PSIC-funded field-based training exercises as described in the Preferred Alternative, because of the use of previously disturbed sites. Because of the occasional and intermittent schedule of the training and exercises, Alternative 2 is not anticipated to cause adverse long-term impacts to the local environment, wildlife, and vegetation. Impacts from the training and exercises would be expected to have no significant impacts on wildlife, wildlife habitat, and vegetation.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to wildlife, wildlife habitat, and vegetation as a result of planning and classroom-based training activities.

4.5.5.3.2 Migratory Birds

Implementation of Alternative 2 would not result in long-term operation of activities, nor would it alter the existing environment. Field-based training exercises with vehicle operations would occur at designated and established locations with minimal impacts to migratory birds. Impacts on migratory birds would be the same for PSIC-funded field-based training exercises as those described in the Preferred Alternative.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to migratory birds as a result of planning and classroom-based training activities.

4.5.5.3.3 Threatened and Endangered Species

Field-based training exercises would have less of an impact on threatened, endangered, and sensitive species than the Preferred Alternative, because of the use of previously disturbed

sites. Additional site-specific analysis would be conducted as necessary once the PSIC-funded project sites were finalized and before project implementation. In addition, because of the regulatory requirements of the ESA, State regulations, and other resource-specific regulations and guidelines, coordination with FWS and NMFS would occur. Whether the proposed activities are likely to adversely affect a Federally listed threatened or endangered species would be determined on the basis of site-specific correspondence with FWS or NMFS, once proposed project locations are finalized. The determination of potential adverse impacts on State-listed species would also be site-specific. If it is determined that there is potential for adverse impacts on a threatened or endangered species, coordination with the FWS or the NMFS would occur under Section 7 of the ESA to ensure minimization of any potential adverse impacts.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to threatened and endangered species as a result of planning and classroom-based training activities.

4.5.5.3.4 Wetlands

Impacts on wetlands would be somewhat less than those discussed from the Preferred Alternative because of the use of previously disturbed sites. Field-based training and exercises with vehicle operations would occur at designated and established installations with minimal impacts to surrounding wetlands. Consistent with EO 11990, the PSIC-funded projects would avoid adverse impacts on wetlands and would proactively manage for wetlands by mitigating potential impacts through avoidance. If it were determined that wetlands encroachment might occur or could not be avoided, correspondence with the USACE would be conducted to determine if jurisdictional wetlands would be impacted and to establish appropriate mitigation to minimize adverse impacts.

Planning and classroom-based training activities would take place exclusively indoors in existing facilities. There would be no impacts to wetlands as a result of planning and classroom-based training activities.

4.5.5.4 Biological Resources Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, the PSIC-funded projects would not be implemented. The No Action Alternative would continue to maintain the area with its existing conditions, facilities, and operations. There would be no significant impacts on vegetation and wildlife, migratory birds, threatened and endangered species, or wetlands resulting from the No Action Alternative.

4.5.6 Historic and Cultural Resources

4.5.6.1 Significance Criteria

Impacts to historic and cultural resources were evaluated using the following criteria:

No Impact. Impacts to any NRHP eligible or listed properties, or TCPs, would not occur, or such conditions are not present.
No Significant Impact. The historic characteristics or setting of an NRHP eligible or listed property are altered, or have the potential to be altered, but the resource retains its integrity (equates to *no adverse effect* under Section 106). The traditional, cultural, or religious significance to Native peoples of a TCP will not be compromised or diminished.
Significant Impact. The integrity of an NRHP eligible or listed property would be diminished or destroyed (equates to *adverse effect* under Section 106). The traditional, cultural, or religious significance of a TCP to Native peoples would be destroyed.

4.5.6.2 Historic and Cultural Resources Impacts, Preferred Alternative, Planning, Training, and Exercises

There would be no impact to historic and cultural resources resulting from PSIC-funded planning and classroom-based training activities under the Preferred Alternative.

There would be no impacts to architectural resources resulting from PSIC-funded field-based training and exercises resulting from the Preferred Alternative, since these exercises would not involve construction or external renovation of any structures.

Field-based training activities would have the potential to adversely impact archaeological resources and TCPs. Factors affecting the degree to which these resources would be affected include the specific activities required and any particular infrastructure, materials, equipment, or technology that may be required to make the field-based training useful and meaningful. Movements of people and equipment on unpaved, bare, or vegetated sites could result in degradation of archaeological resources near the surface and may temporarily prevent the use of or access to TCPs. For projects involving these activities, once the exact parameters of field-based training and exercises are identified, a site-specific analysis and consultation with the SHPO/THPO may be required to determine the exact nature and extent of impacts. Impacts would not be expected to be significant under the Preferred Alternative.

4.5.6.3 Historic and Cultural Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Impacts to historic and cultural resources resulting from PSIC-funded planning and classroom-based training would be the same from Alternative 2 as those from the Preferred Alternative.

Impacts to architectural resources and TCPs resulting from PSIC-funded field-based training and exercises would be the same from Alternative 2 as those from Preferred Alternative.

Impacts to archaeological resources resulting from PSIC-funded field-based training and exercises under Alternative 2 would be less adverse than those from the Preferred Alternative, since previously disturbed sites have a lower likelihood of containing archaeological resources than previously undisturbed sites. Therefore, the probability is reduced of impacting resources near the surface through the movements of people and equipment over unpaved, bare, or vegetated surfaces. Once the exact parameters of field-based training and exercises are identified, a site-specific analysis would be required to determine the exact nature and extent of impacts. No significant impacts would be expected under Alternative 2.

4.5.6.4 Historic and Cultural Resources Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, no PSIC-funded planning, training, or exercises would take place. There would be no impact to historic and cultural resources resulting from the No Action Alternative.

4.5.7 Aesthetic and Visual Resources

4.5.7.1 Significance Criteria

Impacts to aesthetics and visual resources have been evaluated using the following criteria:

No Impact. Impacts to the viewshed of any historic resources or the aesthetic character of the surrounding area would not occur, or such conditions are not present.
No Significant Impact. No permanent direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action would be expected. Any visual disturbances that alter the character of the viewshed or aesthetic character of the surrounding area would be temporary, and the area would be returned to its original state following the action.

Significant Impact. Direct or indirect impacts to the viewsheds of any historic resources or the aesthetic character of the surrounding area from the alternatives to implement the Proposed Action are anticipated, and these effects would be greater in number, extent, or duration than nonsignificant impacts. Significant impacts could include disturbances (such as the long-term alteration of the viewshed that would require mitigation) that could alter the character of the viewshed of a historical resource, and the viewshed might not resume its original state following the action.

4.5.7.2 Aesthetic and Visual Resources Impacts, Preferred Alternative, Planning, Training, and Exercises

Field-based training and exercises may have the potential to temporarily impact aesthetic and visual resources. Factors affecting the degree to which these resources would be affected depends on the number of individuals participating in the training, the frequency of the training, the specific activities required, and any particular infrastructure, materials, equipment, or technology that may be required to make the field-based training useful and meaningful. The Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to aesthetic and visual resources. Field-based training and exercises with vehicle operations would occur at designated and established installations with minimal aesthetic and visual resource impacts to surrounding communities. There would be no impacts to aesthetic and visual resources as a result of planning and classroom-based training activities, since these activities would take place in existing facilities.

4.5.7.3 Aesthetic and Visual Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Impacts from field-based training and exercises resulting from Alternative 2 would be somewhat less than those from the Preferred Alternative since previously undisturbed sites would not be used, thereby avoiding potential adverse aesthetic and visual resources. There would be no impacts to aesthetic and visual resources as a result of planning and classroom-based training activities.

4.5.7.4 Aesthetic and Visual Resources Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, no PSIC-funded planning, training, or exercises would be implemented. There would be no impact to aesthetic or visual resources resulting from the No Action Alternative.

4.5.8 Land Use Planning

4.5.8.1 Significance Criteria

Impacts to land use planning were evaluated against the following criteria:

No Impact. Impacts to existing land use patterns would not occur.
No Significant Impact. Impacts to land use would be measurable or perceptible but would be limited to a relatively small change in land use that is still compatible with surrounding or planned land uses. The alternatives to implement the Proposed Action would be consistent with respective State CZMPs and would not affect coastal barrier resources.
Significant Impact. Impacts to land use would be substantial. Surrounding land uses are expected to substantially change in the short and long term. The alternatives to implement the Proposed Action would not be consistent with either the surrounding land use or State CZMPs or would impact coastal barrier resources.

4.5.8.2 Land Use Planning Impacts, Preferred Alternative, Planning, Training, and Exercises

4.5.8.2.1 General Land Use Compatibility

Under the Preferred Alternative, PSIC-funded classroom-based training and planning would take place in existing facilities. There would be no impact to land use from these activities.

Field-based training and exercises would take place on existing training grounds, and if planned training and exercises were similar in content to those for which the grounds are currently used, there would be no impact to land use. If training and exercises would introduce new activities to the training grounds, those activities would need to be analyzed on a site-specific level to determine the nature of impacts to land use.

4.5.8.2.2 Coastal Zone

Indoor activities performed at existing facilities, such as classroom-based training and planning activities, would have no impact on the coastal zone.

Field-based training activities in the coastal zone may be required to undergo a consistency determination with the State CZMP. Impacts would need to be analyzed on a site-specific basis for field-based training proposed within the coastal zone.

4.5.8.2.3 Coastal Barriers

Indoor activities performed at existing facilities, such as classroom-based training and planning activities, would have no impact on coastal barriers.

Field-based training activities in the CBRA may be required to undergo consultation with FWS. Impacts would need to be analyzed on a site-specific basis for field-based training proposed within the CBRA.

4.5.8.3 Land Use Planning Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

4.5.8.3.1 General Land Use Compatibility

With Alternative 2, impacts to land use would be expected to be less adverse than those resulting from the Preferred Alternative, since only previously disturbed sites would be used.

4.5.8.3.2 Coastal Zone

Impacts to the coastal zone resulting from Alternative 2 would be less adverse than those from the Preferred Alternative, since no previously disturbed sites would be used.

4.5.8.3.3 Coastal Barriers

Impacts to coastal barriers resulting from Alternative 2 would be less adverse than those from the Preferred Alternative, since no previously disturbed sites would be used.

4.5.8.4 Land Use Planning Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, there would be no PSIC-funded planning, classroom-based training, or field-based training and exercises. There would be no impacts to land use, the coastal zone, or coastal barriers resulting from the No Action Alternative.

4.5.9 Infrastructure

4.5.9.1 Significance Criteria

Impacts to utilities have been evaluated using the following criteria:

No Impact. Impacts to the human or natural environment would not occur, or such conditions are not present.

No Significant Impact. An impact to the human or natural environment would occur but is less than thresholds indicated below for “significant impact.”

Significant Impact.

- **Electricity.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require energy in quantities that would exceed local or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy.
- **Communications.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require communication systems to meet requirements that could not be provided without major modifications to the existing systems.
- **Potable Water.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more potable water than could be reliably provided by available potable water sources, leading to shortages, or if regulatory limitations on withdrawals would potentially be exceeded.
- **Natural Gas.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more natural gas than could be reasonably provided by the existing system, leading to shortages.
- **Wastewater.** Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require more wastewater treatment capacity than could be reliably provided by the existing wastewater treatment system, potentially leading to the discharge of effluents in excess of standards. Major shortfalls in collection capacity could also be potentially significant.

Impacts on solid waste collection and disposal have been evaluated using the following criteria:

No Impact. The alternatives to implement the Proposed Action do not affect the human or natural environment.
No Significant Impact. An effect to the human or natural environment would occur, but it is less than thresholds, indicated below, for "significant impact."
Significant Impact. Effects would be considered potentially significant if the alternatives to implement the Proposed Action would require collection or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

Impacts on the transportation network have been evaluated using the following criteria:

No Impact. No alterations of traffic patterns and trends would occur; no additional demand would be placed on the existing transportation network.
No Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would be within the network's capacity and could be absorbed without creating disruption. Traffic patterns and trends would not undergo changes that would affect service.
Significant Impact. Additional demand placed on the existing transportation network by the alternatives to implement the Proposed Action would exceed the network's capacity, creating disruptions in service in roadways, rail, or air transportation.

4.5.9.2 Infrastructure Impacts, Preferred Alternative, Planning, Training, and Exercises

4.5.9.2.1 Utilities

Because of the occasional and intermittent schedule of planning, training, and exercises, the Preferred Alternative is not anticipated to cause adverse short- or long-term impacts to the local utility quality and availability, or measurably increase the utility services levels. Activities planned within an urbanized environment would be expected to have less potential for adverse impacts on utility services than activities in rural areas. Field-based training and exercises would

occur at designated and established installations. Impacts from planning, training and exercises would be expected to have no significant impact on utility services.

4.5.9.2.2 Solid Waste
Planning, training, and exercises would be unlikely to require solid waste collection and disposal services. The amount of waste generated during planning, training, and exercises would not cause a significant impact on local or regional solid waste management resources.

4.5.9.2.3 Transportation Network
Planning, training, and exercise activities are not anticipated to cause short- or long-term impacts to transportation networks. Field-based training and exercises with vehicle operations would occur at designated and established installations with minimal impacts to surrounding communities and associated primary and secondary roadways. Potential impacts to transportation are expected to be low, provided appropriate planning and implementation actions are taken. Existing roads should be used to the maximum extent possible. Because of the occasional and intermittent planning for training and exercises, transportation activities during planning, training, and exercise operations would not be expected to cause noticeable impacts to local transportation networks, although public notification and mitigation may be required before implementation of a field-based training exercise that would need to use public roadways in any capacity.

4.5.9.3 Infrastructure Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

4.5.9.3.1 Utilities
Impacts on utilities as those discussed from the Preferred Alternative would be expected. There would be no significant impacts to utilities.

4.5.9.3.2 Solid Waste
Impacts on solid waste as those discussed from the Preferred Alternative would be expected. There would be no significant impact to solid waste.

4.5.9.3.3 Transportation Network
Similar impacts on transportation networks as those discussed from the Preferred Alternative would be expected. There would be no significant impact to transportation networks.

4.5.9.4 Infrastructure Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, no PSIC-funded projects would be implemented, and there would be no planning, training, or exercise activities. There would be no impact to utilities, solid waste, or the transportation network resulting from the No Action Alternative.

4.5.10 Socioeconomic Resources

4.5.10.1 Significance Criteria

Impacts to socioeconomic resources have been evaluated using the following criteria:

No Impact. Impacts to demographics, employment, housing, or services would not occur. No effects on low-income or minority populations would occur.
No Significant Impact. There would be some measurable changes to demographics, employment, or the demand for housing or services, but they would not impact the availability of jobs, housing, or services. There would be no disproportionate effects to low-income or minority populations.
Significant Impact. There would be measurable changes to demographics, employment, or the demand for housing or services that would impact the availability of jobs, housing, or services. There would be disproportionate impacts to low-income or minority populations.

4.5.10.2 Socioeconomic Resources Impacts, Preferred Alternative, Planning, Training, and Exercises

There would be no impact to socioeconomic resources or environmental justice resulting from planning or classroom-based training activities.

Field-based training activities will not impact socioeconomic resources but have the potential to adversely impact environmental justice if new training grounds are established in low-income or minority areas. It is assumed, however, that most, if not all, training and exercises would use existing facilities. Existing field training areas are typically located in more remote areas; however, if new activities are being proposed at the training grounds that involve an increase in intensity of use; introduce chemicals, materials or equipment not previously approved and vetted; or involve an increase in the frequency of use, there may be adverse impacts that would need to be examined on a site-specific basis.

4.5.10.3 Socioeconomic Resources Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

There would be no impact to socioeconomic resources or environmental justice resulting from planning or classroom-based training activities.

Impacts to socioeconomic resources and environmental justice from field-based training and exercises would potentially be more adverse, since exercises would take place on previously disturbed ground, i.e. developed areas. A site-specific study may need to be conducted to determine the level of impacts.

4.5.10.4 Socioeconomic Resources Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, no PSIC-funded planning, training, and exercise projects would be implemented, and no PSIC-related spending would take place. Under this alternative, there would be no impact to socioeconomic resources or environmental justice.

4.5.11 Human Health and Safety

4.5.11.1 Significance Criteria

Impacts to human health and safety have been evaluated using the following criteria:

No Impact. Increases would not occur in the amount of hazardous or toxic materials or wastes to be handled, stored, used, or disposed of. There would be no increase in workplace safety hazards.

No Significant Impact. Hazardous or toxic materials or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks. There would be no increase in workplace safety hazards.

Significant Impact. A net increase would occur in the amount of hazardous or toxic materials or wastes generated, handled, stored, used, or disposed of, resulting in unacceptable risk, exceedance of available waste disposal capacity and probable regulatory violations. Site contamination conditions could preclude development of sites for the proposed use. Workplace hazards, such as on-the-job injuries, could increase.

4.5.11.2 Human Health and Safety Impacts, Preferred Alternative, Planning, Training, and Exercises

Under the Preferred Alternative, PSIC-funded planning, classroom-based training, and field-based training and exercises would be implemented. There would be no adverse impacts to human health and safety resulting from classroom-based training and planning activities, although classroom-based training activities may be recommended before field-based training. To maximize efficiency in real emergency response situations, the development of emergency response training protocols, plans, and opportunities would allow first responders to engage

each other in simulated situations. Furthermore, these training and exercises, both classroom- and field-based, would allow for the testing and evaluation of emergency response plans in a nonemergency situation. There would be a beneficial impact to human health and safety resulting from the implementation of planning and classroom-based training activities.

Field-based training and exercises have the potential to adversely impact human health and safety, depending on the types of materials and equipment used for training, which may introduce hazardous materials into the environment. These impacts would need to be evaluated at a site-specific level and would be mitigated.

4.5.11.3 Human Health and Safety Impacts, Alternative 2 (Previously Disturbed Sites Only), Planning, Training, and Exercises

Impacts to human health and safety resulting from Alternative 2 would be the same as those expected from the Preferred Alternative.

4.5.11.4 Human Health and Safety Impacts, No Action Alternative, Planning, Training, and Exercises

Under the No Action Alternative, implementation of planning, training, and exercises using PSIC funds would not take place. Existing knowledge gaps in interoperable communications and their role in emergency response situations would continue, and the ability of first responders to respond effectively and rapidly to emergency situations would continue to be compromised. There would be adverse impacts to human health and safety resulting from the No Action Alternative.

4.6 CUMULATIVE IMPACTS ANALYSIS

In addition to analyzing the direct and indirect impacts of the specific PSIC project types, CEQ's NEPA regulations require addressing the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions no matter which agency (Federal or non-Federal) or person undertakes such other actions. These incremental impacts are referred to as cumulative impacts. "Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7).

This PEA identifies several PSIC project types that will require preparation of site-specific EAs, and cumulative impacts of those projects will be analyzed in their site-specific documents. The remaining project types are addressed here. These projects include new and upgraded sites for transmitting and receiving with towers less than 200 feet above the ground and less than 1 acre of ground-disturbing activity; operations and response centers with less than 1 acre of ground-disturbing activity, mobile infrastructure, mobile and portable equipment; and planning, training and exercises with less than 1 acre of ground disturbance. These activities are predicted to have no significant impacts as long as they do not involve significant risks or impacts to sensitive areas. If any of the above activities do involve significant risks or impacts to sensitive areas, they will require preparation of a site-specific EA.

Because the PSIC projects could be proposed anywhere within the 50 States, 5 territories, and the District of Columbia and specific project sites have not yet been identified, it is difficult to predict the cumulative effects of these projects when combined with other potential projects. The PEA can only address cumulative impacts qualitatively. It is possible that additional development resulting from normal population growth may co-locate with some PSIC-funded projects that have already been identified as requiring preparation of a site-specific EA. However, cumulative impacts resulting from such co-location are not expected to be significant because of the geographically dispersed nature and scale of PSIC-funded projects.

The majority of the project types included in the PEA will involve retrofit or redevelopment of existing sites, greatly reducing the impacts to natural areas and wildlife resources because of

the previously disturbed nature of the sites. This also reduces the impact to historic buildings and structures and to archeological sites, since many activities will be interior modifications to install gateways, terminals, and consoles. Those project types involving new construction and ground-disturbing activity will be limited to less than 1 acre, which serves to limit impacts. BMPs will be implemented to further reduce the already limited impacts.

The cumulative impact of the project types that are determined by the analysis presented in this PEA not to result in significant impacts are not expected to result in significant cumulative impacts to either human health or the environment.

4.7 MITIGATION

Mitigation for site-specific analyses will be addressed in those documents. This PEA did not identify the need for mitigation actions for the project types covered by the projected Finding of No Significant Impact (FONSI). It did however identify a number of BMP which could further reduce impacts that are less than significant resulting from the Proposed Actions. These BMPs are related to controlling direct and fugitive air emissions, erosion, and runoff and impacts to wildlife, historic and cultural resources, and floodplains and wetlands. Examples of BMPS are presented below.

Noise

During construction, use of electric powered equipment instead of gasoline ensures that, where applicable, mufflers are used in exhaust systems, and construction will be limited to daylight hours. Operational noise relates primarily to the use of emergency and backup generators and can be controlled through proper use of mufflers.

Air Quality

Construction emissions can be limited by using electrically powered equipment whenever possible and using biodiesel or low sulfur diesel fuel. Fugitive dust from construction or exercises can be controlled by limiting open and disturbed areas to the minimum required for the operation, by wetting or using a soil stabilizer, using temporary gravel cover, limiting the number and speed of vehicles on the site, and covering trucks hauling dirt. Operational air quality impacts relate primarily to the use of emergency and backup generators and can be controlled by installing emission control devices; using biodiesel, liquid propane, or compressed natural gas instead of diesel fuel; using low or ultra-low sulfur diesel fuel; and properly maintaining equipment.

Biological Resources

The primary impacts to wildlife resources would likely result from the loss or fragmentation of habitat. Erosion, sedimentation, and stormwater runoff during site development activities would require BMPs. BMPs may include silt fencing, straw bales, limited uncovered soil, staging areas, replanting of vegetation as soon as practicable, mulching, and temporary gravel cover. A spill contingency plan should be developed and implemented to minimize potential impacts resulting from leakage of equipment and fuel vehicles during site development.

To avoid potential migratory bird impacts, new towers that would be constructed are to be less than 200 feet in height and would not use guy wires for support and would not require lighting (in most cases).

Construction and development activities would avoid threatened and endangered species, critical habitats, and wetland areas.

Water Quality

Water quality impacts would come primarily from erosion, with sediment-laden runoff from construction activities or with areas disturbed during exercises. BMPs for erosion control include silt fencing or straw bales to control erosion, limiting the area of uncovered soil to the minimum needed for each activity, siting of staging areas to minimize erosion, replanting as soon as practicable, mulching, using temporary gravel cover, and limiting the number and speed of vehicles on the site. A spill plan should be developed and followed when fuel vehicles and generators require the presence of on-site fuel storage.

Land Use

Wherever possible existing zoning requirements would be complied with to ensure compatibility of uses.

Utilities

For construction-related activities, contractors will verify the locations of utility lines (overhead and underground) for natural gas, electricity, sewage, storm drains, telephone, fuel, and water, through field surveys and other methods before construction. In areas where unanticipated underground utilities are discovered, plans to minimize service impacts shall be developed and coordinated with the affected utilities.

Residents and businesses in the project area shall be notified of any planned utility service disruption, in conformance with county and State standards.

Solid Waste

Project design and construction methods shall be implemented that produce less waste or encourage the production of waste that could more readily be recycled or reused. The removal of asphalt, concrete, and debris should be conducted in accordance with city and State regulations for solid waste disposal.

For construction-related activities, contractors would be required to describe plans for recovering, reusing, or recycling wastes produced through construction, demolition, and excavation activities within construction specifications.

5.0 FINDINGS AND CONCLUSIONS

5.1 FINDINGS

Site-specific project proposals are being developed at this point in the PSIC process and are not addressed in this PEA. Examination of the five groups of projects revealed that transmitting and receiving sites, operations and response centers, and the exercise portion of planning, training and exercises would likely involve ground-disturbing activities with resultant potential for environmental impacts at the site-specific level. This PEA determined that preparation of site-specific EAs will be required for transmitting and receiving sites involving new towers 200 or more feet above the ground, guyed towers, and ground-disturbing of 1 acre or more; upgrades and retrofits of existing response centers; new response centers involving 1 acre or more of ground-disturbing activity; and exercises to be conducted at previously undisturbed sites that would involve ground disturbance of 1 acre or more. Projects involving any of the unusual risks or impacts to sensitive areas identified in Section 4.0 will require site-specific EAs.

With the exclusion of the projects noted above, none of the predicted effects of the Preferred Alternative or Alternative 2 would result in significant impacts. The No Action Alternative would result in adverse impacts to human health and safety. Therefore, the Preferred Alternative would warrant the issuance of a FONSI to cover those actions for which no significant impact has been determined. Projects for the acquisition of mobile infrastructure, mobile and portable equipment, and planning and training are not likely to require any ground-disturbing activity and thus will not result in any environmental impacts. Upgrading and retrofitting of existing transmitting and receiving sites and operation and response centers will not result in significant impacts.

5.1.1 Consequences of the No Action Alternative

Under the No Action Alternative, no PSIC-funded projects for interoperable communications would occur across any of the five project types defined in Section 2.0. Existing gaps in public safety interoperable communications would persist, resulting in an adverse impact to human health and safety.

5.1.2 Consequences of the Preferred Alternative

The Preferred Alternative would not have a significant impact on any resource area for those projects falling within the parameters described in Chapter 4 and as summarized in Table 5-1 through Table 5-5. The Preferred Alternative would have beneficial impact on human health and safety, because it would enable nationwide improvements to public safety interoperable communications.

Those projects that may require further study to determine the nature and extent of environmental impacts in a follow-on site-specific study are also defined in Chapter 4 and Table 5-1 through Table 5-5.

5.1.3 Consequences of Alternative 2 (Previously Disturbed Sites Only)

Alternative 2 would not have a significant impact on any resource area for those projects falling within parameters described in Chapter 4 and summarized in Table 5-1 through Table 5-5. Alternative 2 would have a beneficial impact on human health and safety, since it would enable nationwide improvements to public safety interoperable communications; however, its benefits would be less than those seen under the Preferred Alternative. Proposed project sites are identified primarily for their ability to fill a gap in coverage. If alternative sites must be selected to avoid previously undisturbed sites, then some gaps in coverage may remain. In addition, the site selection process may result in project delays that would be incompatible with the PSIC grant funds' time horizon.

Table 5-1. Findings and Conclusions Summary Table—Transmitting and Receiving Sites

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Noise	No significant construction-related impacts; noise impacts are expected primarily in daytime hours. No significant operations-related impacts; generator noise is expected to be occasional and of short duration.	No significant construction-related impacts; noise impacts are expected primarily in daytime hours. No significant operations-related impacts; generator noise is expected to be occasional and of short duration.	No impact
Air Quality	No significant construction related impacts; any impacts would be short-term. No significant operations-related impacts; generator use is expected to be occasional and of short duration. New generators may reduce emissions.	No significant construction related impacts; any impacts would be short-term. No significant operations-related impacts; generator use is expected to be occasional and of short duration. New generators may reduce emissions.	No impact
Geology and Soils	No construction-related impacts for those projects with no ground disturbance. No significant construction-related impact for projects with ground disturbance of less than 1 acre. Projects with ground disturbance of greater than 1 acre will require a site-specific study.	No construction-related impacts for those projects with no ground disturbance. No significant construction-related impact for projects with ground disturbance of less than 1 acre. Projects with ground disturbance of greater than 1 acre will require a site-specific study. Impacts will be less than for Preferred Alternative, because of the reduction in use of previously undisturbed sites.	No impact
Water Resources			
Surface Water and Groundwater	No impact for sites with no ground disturbance. For sites requiring ground-disturbing activities, construction-related impacts such as erosion and sedimentation would be short-term and would not be significant. There would be no significant operations-related impacts.	No impact for sites with no ground disturbance. For sites requiring ground-disturbing activities, construction-related impacts such as erosion and sedimentation would be short-term and would not be significant. There would be no significant operations-related impacts.	No impact
Floodplains	If no practicable alternative were found to locating in a floodplain, a site-specific study and possible mitigation would be required.	No new floodplain development would occur; if no previously undisturbed sites were used. No significant impact.	No impact
Biological Resources			
Wildlife, Wildlife Habitat, and Vegetation	Construction-related short-term impacts because of habitat disturbance and noise would be expected, although a site-specific study would be required to determine the extent of impacts. There would be no significant operations-related impacts.	Construction-related short-term impacts because of habitat disturbance and noise would be expected, although a site-specific study would be required to determine the extent of impacts. There would be no significant operations-related impacts.	No impact
Migratory Birds	Site-specific analysis would	Site-specific analysis would	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	be required to fully determine both construction- and operations-related impacts.	be required to fully determine both construction- and operations-related impacts.	
Threatened and Endangered Species	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	No impact
Wetlands	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	No impact
Historic and Cultural Resources			
Archaeological Resources	No impact from projects that would not involve ground disturbance. No significant impacts expected on previously disturbed sites. Projects with ground disturbance on previously undisturbed sites would require site-specific analysis and consultation with the SHPO/THPO.	No impact from projects that would not involve ground disturbance. No significant impacts expected on previously disturbed sites.	No impact
Architectural Resources	Site-specific analysis and consultation with the SHPO/THPO for projects sited in the vicinity of historic properties or TCPs. Projects outside the APE for historic properties or TCPs would have no impact.	Site-specific analysis and consultation with the SHPO/THPO for projects sited in the vicinity of historic properties or TCPs. Projects outside the APE for historic properties or TCPs would have no impact.	No impact
Traditional Cultural Properties	Site-specific analysis and consultation with the THPO for projects sited in the vicinity of TCPs. Projects outside the area of potential effect for TCPs would have no impact.	Site-specific analysis and consultation with the THPO for projects sited in the vicinity of TCPs. Projects outside the APE for TCPs would have no impact.	No impact
Aesthetics and Visual Resources	Short-term adverse construction-related impacts would not be significant. Long-term adverse operations-related impacts may occur and would not be significant.	Short-term adverse construction-related impacts would not be significant. Long-term adverse operations-related impacts may occur and would not be significant.	No impact
Land Use Planning			
General Land Use Compatibility	A site-specific study would be required to determine compatibility for new towers. Equipment placed on existing towers would not have a significant impact.	A site-specific study would be required to determine compatibility for new towers. Equipment placed on existing towers would not have a significant impact.	No impact
Coastal Zone	Consistency with State CZMP would be determined through a site-specific study.	Consistency with State CZMP would be determined through a site-specific study.	No impact
Coastal Barriers	Impacts to the CBRS would be determined through a site-specific study and consultation with the FWS or	Impacts to the CBRS would be determined through a site-specific study and consultation with the FWS or	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	NMFS, if required.	NMFS, if required.	
Infrastructure			
Utilities	Short-term adverse construction-related impacts, because of interference with availability would not be significant. No significant operations-related impacts.	Short-term adverse construction-related impacts because of interference with availability would not be significant. No significant operations-related impacts.	No impact
Solid Waste	Short-term adverse construction-related impacts because of construction and demolition (C&D) waste would not be significant. No significant impacts from operations.	Short-term adverse construction-related impacts because of C&D waste would not be significant. No significant impacts from operations.	No impact
Transportation Network	Short-term adverse construction-related impacts because of construction vehicles. No significant impacts from operations.	Short-term adverse construction-related impacts because of construction vehicles. No significant impacts from operations.	No impact
Socioeconomic Resources			
Economic Development	No significant impacts to economic development.	No significant impacts to economic development.	No impact
Demographics	No significant impact, since there is no significant job-related in-migration expected.	No significant impact, since there is no significant job-related in-migration expected.	No impact
Housing and Services	No significant impact, since there is no significant job-related in-migration expected.	No significant impact, since there is no significant job-related in-migration expected.	No impact
Environmental Justice	Environmental justice impacts would be determined on a site-specific basis. Impacts are not expected to be significant.	Environmental justice impacts would be determined on a site-specific basis. Occurrences may be slightly higher because of the use of previously disturbed sites. Impacts are not expected to be significant.	No impact
Human Health and Safety	Construction-related increases in human health and safety hazards would not be significant. Operations-related health and safety hazards from on-site fuel storage and equipment-derived radiation would not be significant.	Construction-related increases in human health and safety hazards would not be significant. Operations-related health and safety hazards from on-site fuel storage and equipment-derived radiation would not be significant. Project siting is linked to signal propagation; therefore, changing sites may adversely impact interoperable communications, but impacts are not expected to be significant.	Adverse impacts to health and human safety from the continued gaps in emergency response interoperability

Table 5-2. Findings and Conclusions Summary Table—Operations and Response Centers

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Noise	No significant construction-related impacts; noise impacts are expected primarily in daytime hours. No significant operations-related impacts; generator noise is expected to be occasional and of short duration.	No significant construction-related impacts; noise impacts are expected primarily in daytime hours. No significant operations-related impacts; generator noise is expected to be occasional and of short duration.	No impact
Air Quality	No significant construction related impacts; any impacts would be short-term. Interior renovations would not have any impact. No significant operations-related impacts; generator use is expected to be occasional and of short duration. New generators may reduce emissions.	No significant construction related impacts; any impacts would be short-term. Interior renovations would not have any impact. No significant operations-related impacts; generator use is expected to be occasional and of short duration. New generators may reduce emissions.	No impact
Geology and Soils	No construction-related impacts for those projects with no ground disturbance. No significant construction-related impact for projects with ground disturbance of less than 1 acre. Projects with ground disturbance of greater than 1 acre will require a site-specific study.	No construction-related impacts for those projects with no ground disturbance. No significant construction-related impact for projects with ground disturbance of less than 1 acre. Projects with ground disturbance of greater than 1 acre will require a site-specific study.	No impact
Water Resources			
Surface Water and Groundwater	No impact for sites with no ground disturbance. For sites requiring ground-disturbing activities; construction-related impacts such as erosion and sedimentation would be short-term and would not be significant. There would be no significant operations-related impacts.	No impact for sites with no ground disturbance. For sites requiring ground-disturbing activities; construction-related impacts such as erosion and sedimentation would be short-term and would not be significant. There would be no significant operations-related impacts.	No impact
Floodplains	If no practicable alternative were found to locating in a floodplain, a site-specific study and possible mitigation would be required.	No new floodplain development would occur if no previously undisturbed sites were used. No significant impact.	No impact
Biological Resources			
Wildlife, Wildlife Habitat, and Vegetation	Construction-related short-term impacts because of habitat disturbance and noise would be expected, although a site-specific study would be required to determine the extent of impacts. There would be no significant operations-related impacts.	Construction-related short-term impacts because of habitat disturbance and noise would be expected, although a site-specific study would be required to determine the extent of impacts. There would be no significant operations-related impacts.	No impact
Migratory Birds	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Threatened and Endangered Species	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	No impact
Wetlands	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	Site-specific analysis would be required to fully determine both construction- and operations-related impacts.	No impact
Historic and Cultural Resources			
Archaeological Resources	No impact from projects that would not involve ground disturbance. No significant impacts expected on previously disturbed sites. Projects with ground disturbance on previously undisturbed sites would require site-specific analysis and consultation with the SHPO/THPO.	No impact from projects that would not involve ground disturbance. No significant impacts expected on previously disturbed sites.	No impact
Architectural Resources	Site-specific analysis and consultation with the SHPO/THPO for projects proposing external renovations or expansion directly involving, or sited in the vicinity of, historic properties or TCPs. Projects outside the APE for historic properties or TCPs would have no impact.	Site-specific analysis and consultation with the SHPO/THPO for projects proposing external renovations or expansion directly involving, or sited in the vicinity of historic properties or TCPs. Projects outside the APE for historic properties or TCPs would have no impact.	No impact
Traditional Cultural Properties	Site-specific analysis and consultation with the THPO for projects sited in the vicinity of TCPs. Projects outside the APE for TCPs would have no impact.	Site-specific analysis and consultation with the THPO for projects sited in the vicinity of TCPs. Projects outside the APE for TCPs would have no impact.	No impact
Aesthetics and Visual Resources	Short-term adverse construction-related impacts would not be significant. Long-term adverse operations-related impacts may occur and would not be significant.	Short-term adverse construction-related impacts would not be significant. Long-term adverse operations-related impacts may occur and would not be significant.	No impact
Land Use Planning			
General Land Use Compatibility	For expansion and renovation of existing centers, no impacts to compatibility are expected. New centers may require a site-specific study.	For expansion and renovation of existing centers, no impacts to compatibility are expected. New centers may require a site-specific study.	No impact
Coastal Zone	Consistency with State CZMP would be determined through a site-specific study.	Consistency with State CZMP would be determined through a site-specific study.	No impact
Coastal Barriers	Impacts to the CBRS would be determined through a site-specific study and consultation with the FWS or NMFS, if required.	Impacts to the CBRS would be determined through a site-specific study and consultation with the FWS or NMFS, if required.	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Infrastructure			
Utilities	Short-term adverse construction-related impacts because of interference with availability would not be significant. No significant operations-related impacts.	Short-term adverse construction related impacts because of interference with availability would not be significant. No significant operations-related impacts.	No impact
Solid Waste	Short-term adverse construction-related impacts because of C&D waste would not be significant. No significant impacts from operations.	Short-term adverse construction-related impacts because of C&D waste would not be significant. No significant impacts from operations.	No impact
Transportation Network	Short-term adverse construction-related impacts because of construction vehicles. No significant impacts from operations.	Short-term adverse construction-related impacts because of construction vehicles. No significant impacts from operations.	No impact
Socioeconomic Resources			
Economic Development	No significant impacts to economic development.	No significant impacts to economic development.	No impact
Demographics	No significant impact, since there is no significant job-related in-migration expected.	No significant impact, since there is no significant job-related in-migration expected.	No impact
Housing and Services	No significant impact, since there is no significant job-related in-migration expected.	No significant impact, since there is no significant job-related in-migration expected.	No impact
Environmental Justice	Environmental justice impacts would be determined on a site-specific basis. Impacts are not expected to be significant.	Environmental justice impacts would be determined on a site-specific basis. Occurrences may be slightly higher because of the use of previously disturbed sites. Impacts are not expected to be significant.	No impact
Human Health and Safety	Construction-related increases in human health and safety hazards would not be significant. Operations-related health and safety hazards from on-site fuel storage and equipment-derived radiation would not be significant.	Construction-related increases in human health and safety hazards would not be significant. Operations-related health and safety hazards from on-site fuel storage and equipment-derived radiation would not be significant. The exclusive use of previously undisturbed sites may limit distribution of operations and response centers, potentially causing an adverse impact to human health and safety. This impact would not be expected to be significant.	Adverse impacts to health and human safety from the continued gaps in emergency response interoperability.

Table 5-3. Findings and Conclusions Summary Table—Mobile Infrastructure

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Noise	Field-based training activities would occur at established facilities to minimize noise to surrounding communities. Noise from deployment of mobile infrastructure vehicles is not expected to cause either short- or long-term impacts.	Field-based training activities would occur at established facilities to minimize noise to surrounding communities. Noise from deployment of mobile infrastructure vehicles is not expected to cause either short- or long-term impacts.	No impact
Air Quality	No significant impacts to air quality from occasional use of vehicles and generators.	No significant impacts to air quality from occasional use of vehicles and generators.	No impact
Geology and Soils	No ground-disturbing activities expected. Impacts from off-road vehicle use would not be significant. No significant impact to geology and soils.	No ground-disturbing activities expected. Impacts from off-road vehicle use would not be significant. No significant impact to geology and soils.	No impact
Water Resources			
Surface Water and Groundwater	Erosion and runoff generated from exercises using mobile infrastructure would not be significant.	Erosion and runoff generated from exercises using mobile infrastructure would not be significant.	No impact
Floodplains	No impact to floodplains, because no structures would be installed in a 100-year floodplain.	No impact to floodplains because no structures would be installed in a 100-year floodplain.	No impact
Biological Resources			
Wildlife, Wildlife Habitat, and Vegetation	No impacts expected because of occasional and intermittent operation of vehicles. Sensitive areas would be avoided.	No impacts expected because of occasional and intermittent operation of vehicles. Sensitive areas would be avoided.	No impact
Migratory Birds	No impact; mobile infrastructure would not interfere with flyways.	No impact; mobile infrastructure would not interfere with flyways.	No impact
Threatened and Endangered Species	Once sites for storage and training deployment are finalized, consultation may be required. No significant impacts are expected.	Once sites for storage and training deployment are finalized, consultation may be required. No significant impacts are expected.	No impact
Wetlands	No impacts to wetlands, because no structures would be installed in a wetland. Sensitive areas would be avoided during training deployment.	No impacts to wetlands, because no structures would be installed in a wetland. Sensitive areas would be avoided during training deployment.	No impact
Historic and Cultural Resources			
Archaeological Resources	No impact to archaeological resources, because there would be no ground-disturbing activities.	No impact to archaeological resources, because there would be no ground-disturbing activities.	No impact
Architectural Resources	No impact to architectural resources, because there would be no external renovation of structures nor installation of permanent, fixed structures.	No impact to architectural resources. because there would be no external renovation of structures nor installation of permanent, fixed structures.	No impact
Traditional Cultural Properties	No impacts to TCPs, because there would be no ground-disturbing activities, renovation	No impacts to TCPs, because there would be no ground-disturbing activities, renovation	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	of structures, or installation of permanent, fixed structures.	of structures, or installation of permanent, fixed structures.	
Aesthetics and Visual Resources	No impact expected from deployment of mobile infrastructure. No significant impact expected from storage of mobile infrastructure.	No impact expected from deployment of mobile infrastructure. No significant impact expected from storage of mobile infrastructure.	No impact
Land Use Planning			
General Land Use Compatibility	No impact, because there would be no permanent installation of facilities or functions.	No impact, because there would be no permanent installation of facilities or functions.	No impact
Coastal Zone	No impact, because there would be no permanent installation of facilities.	No impact, because there would be no permanent installation of facilities.	No impact
Coastal Barriers	No impact, because there would be no permanent installation of facilities.	No impact, because there would be no permanent installation of facilities.	No impact
Infrastructure			
Utilities	No impacts, because there would be no additional burden placed on existing utilities.	No impacts, because there would be no additional burden placed on existing utilities.	No impact
Solid Waste	No impact, because existing waste management streams would not be overburdened.	No impact, because existing waste management streams would not be overburdened.	No impact
Transportation Network	No impact, because any deployments would be short-term and intermittent.	No impact, because any deployments would be short-term and intermittent.	No impact
Socioeconomic Resources			
Economic Development	No significant impact; the impacts of spending would not be localized.	No significant impact; the impacts of spending would not be localized.	No impact
Demographics	No impact, because there would be no in- or out-migration.	No impact, because there would be no in- or out-migration.	No impact
Housing and Services	No impact, because there would be no in- or out-migration.	No impact, because there would be no in- or out-migration.	No impact
Environmental Justice	Storage of mobile infrastructure would likely be at existing facilities, therefore no significant impacts.	Storage of mobile infrastructure would likely be at existing facilities, therefore no significant impacts.	No impact
Human Health and Safety	Impacts from increased roadway traffic and materials to maintain and power infrastructure would not be significant. Beneficial impacts to public safety services would be significant.	Impacts from increased roadway traffic and materials to maintain and power infrastructure would not be significant. The exclusive use of previously undisturbed sites may limit distribution of mobile infrastructure, potentially causing an adverse impact to health and safety. This impact would not be expected to be significant. Beneficial impacts to public safety services would be significant.	Adverse impacts would result from continued gaps in public safety interoperability.

Table 5-4. Findings and Conclusions Summary Table—Mobile and Portable Equipment

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Noise	No impacts	No impacts	No impacts
Air Quality	No impacts	No impacts	No impacts
Geology and Soils	No impacts	No impacts	No impacts
Water Resources			
Surface Water and Groundwater	No impacts	No impacts	No impacts
Floodplains	No impacts	No impacts	No impacts
Biological Resources			
Wildlife, Wildlife Habitat, and Vegetation	No impacts	No impacts	No impacts
Migratory Birds	No impacts	No impacts	No impacts
Threatened and Endangered Species	No impacts	No impacts	No impacts
Wetlands	No impacts	No impacts	No impacts
Historic and Cultural Resources			
Archaeological Resources	No impacts	No impacts	No impacts
Architectural Resources	No impacts	No impacts	No impacts
Traditional Cultural Properties	No impacts	No impacts	No impacts
Aesthetics and Visual Resources	No impacts	No impacts	No impacts
Land Use Planning			
General Land Use Compatibility	No impacts	No impacts	No impacts
Coastal Zone	No impacts	No impacts	No impacts
Coastal Barriers	No impacts	No impacts	No impacts
Infrastructure			
Utilities	No impacts	No impacts	No impacts
Solid Waste	No significant impacts. Batteries must be disposed of according to existing regulations.	No significant impacts. Batteries must be disposed of according to existing regulations.	No impacts
Transportation Network	No impacts	No impacts	No impacts
Socioeconomic Resources			
Economic Development	No significant impacts. Increases in spending would not be localized.	No significant impacts. Increases in spending would not be localized.	No impacts
Demographics	No impacts	No impacts	No impacts
Housing and Services	No impacts	No impacts	No impacts
Environmental Justice	No impacts	No impacts	No impacts
Human Health and Safety	No significant adverse impacts; batteries would be disposed of according to existing regulations. Significant beneficial impacts expected from improvements to public safety interoperability.	No significant adverse impacts; batteries would be disposed of according to existing regulations. Significant beneficial impacts expected from improvements to public safety interoperability.	Adverse impacts, gaps in public safety interoperable communications would persist.

Table 5-5. Findings and Conclusions Summary Table—Planning, Training, and Exercises

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Noise	No impacts from classroom-based training and planning. Field-based training noise impacts would be intermittent and of short duration; impacts would not be significant.	No impacts from classroom-based training and planning. Field-based training noise impacts would be intermittent and of short duration; impacts would not be significant.	No impact
Air Quality	No impacts from classroom-based training and planning. Emissions from generators and emergency equipment resulting from field-based training exercises would not be significant.	No impacts from classroom-based training and planning. Emissions from generators and emergency equipment resulting from field-based training exercises would not be significant.	No impact
Geology and Soils	No impacts from classroom-based training and planning. Field-based training exercises may cause adverse impacts based on the size, scope, and frequency of the exercise, as well as equipment used. A site-specific study may be required to determine the nature and extent of impacts.	No impacts from classroom-based training and planning. Field-based training exercises may cause adverse impacts based on the size, scope, and frequency of the exercise, as well as equipment used. Although impacts are expected to be less under this alternative because of the use of previously disturbed sites, a site-specific study may be required to determine the nature and extent of impacts.	No impact
Water Resources			
Surface Water and Groundwater	No impacts from classroom-based training and planning. Field-based training has the potential to impact surface water though increased erosion and runoff, particularly if exercises are conducted on bare soil or vegetation is degraded. Impacts are not expected to be significant.	No impacts from classroom-based training and planning. Field-based training has the potential to impact surface water though increased erosion and runoff, particularly if exercises are conducted on bare soil or vegetation is degraded. Impacts are not expected to be significant.	No impact
Floodplains	No impacts from classroom-based training and planning. Field-based training in floodplains would not result in the construction of any new structures in the floodplain.	No impacts from classroom-based training and planning. Field-based training in floodplains would not result in the construction of any new structures in the floodplain.	No impact
Biological Resources			
Wildlife, Wildlife Habitat, and Vegetation	No impacts from classroom-based training and planning. Field-based training may result in localized adverse impacts to vegetation, as well as disturbance of wildlife and wildlife habitat. Impacts are expected to be temporary and would not be significant.	No impacts from classroom-based training and planning. Field-based training may result in localized adverse impacts to vegetation, as well as disturbance of wildlife and wildlife habitat. Impacts are expected to be temporary and would not be significant.	No impact
Migratory Birds	No impacts from classroom-	No impacts from classroom-	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	based training and planning. Potential short-term localized disturbance to migratory birds; impacts are not expected to be significant.	based training and planning. Potential short-term localized disturbance to migratory birds; impacts are not expected to be significant.	
Threatened and Endangered Species	No impacts from classroom-based training and planning. Field-based training may result in localized adverse impacts to vegetation, as well as disturbance of wildlife and wildlife habitat. Impacts to threatened and endangered species are expected to be temporary and would not be significant, although a site-specific study and consultation with FWS may be required.	No impacts from classroom-based training and planning. Field-based training may result in localized adverse impacts to vegetation, as well as disturbance of wildlife and wildlife habitat. Impacts to threatened and endangered species are expected to be temporary and would not be significant, although a site-specific study and consultation with FWS may be required.	No impact
Wetlands	No impacts from classroom-based training and planning. Wetlands would be avoided if at all possible, and encroachment would be limited and of short duration. Consultation with USACE may be required if encroachment is unavoidable, but impacts are not expected to be significant.	No impacts from classroom-based training and planning. Wetlands would be avoided if at all possible, and encroachment would be limited and of short duration. Consultation with USACE may be required if encroachment is unavoidable, but impacts are not expected to be significant.	No impact
Historic and Cultural Resources			
Archaeological Resources	No impacts from classroom-based training and planning. Movements of people and equipment on unpaved, bare, or vegetated sites could result in degradation of archaeological resources near the surface. A site-specific study and consultation may be required.	No impacts from classroom-based training and planning. Impacts would be less than for the Preferred Alternative because of the exclusive use of previously disturbed sites. However, movements of people and equipment on unpaved, bare, or vegetated sites could result in degradation of archaeological resources near the surface. A site-specific study and consultation may be required.	No impact
Architectural Resources	No impacts from classroom-based training and planning. There would be no impact to architectural resources from field-based training activities because there would be no construction or external renovation of structures.	No impacts from classroom-based training and planning. There would be no impact to architectural resources from field-based training activities because there would be no construction or external renovation of structures.	No impact
Traditional Cultural Properties	No impacts from classroom-based training and planning. Field-based training could result in temporary restriction of use or access	No impacts from classroom-based training and planning. Field-based training could result in temporary restriction of use or access to TCPs. A	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	to TCPs. A site-specific study and consultation with the SHPO/THPO may be required.	site-specific study and consultation with the SHPO/THPO may be required.	
Aesthetics and Visual Resources	No impacts from classroom-based training and planning. Impacts to aesthetics, and visual resources from field-based training would be intermittent and of short duration. Impacts would not be significant.	No impacts from classroom-based training and planning. Impacts to aesthetics, and visual resources from field-based training would be intermittent and of short duration. Impacts would not be significant.	No impact
Land Use Planning			
General Land Use Compatibility	No impacts from classroom-based training and planning. Field-based training exercises would take place on existing training grounds, and as long as content were to be compatible with past training exercises, impacts would not be significant. New activities or materials and equipment used may require a site-specific study to determine impacts.	No impacts from classroom-based training and planning. Field-based training exercises would take place on existing training grounds, and as long as content were to be compatible with past training exercises, impacts would not be significant. New activities or materials and equipment used may require a site-specific study to determine	No impact
Coastal Zone	No impacts from classroom-based training and planning. Field-based training activities may be required to undergo a consistency determination at the site level; therefore, a site-specific analysis may be required.	No impacts from classroom-based training and planning. Field-based training activities may be required to undergo a consistency determination at the site level; therefore, a site-specific analysis may be required.	No impact
Coastal Barriers	No impacts from classroom-based training and planning. Field-based training activities may be required to undergo consultation with the FWS or NMFS at the site level; therefore, a site-specific analysis may be required.	No impacts from classroom-based training and planning. Field-based training activities may be required to undergo consultation with the FWS or NMFS at the site level; therefore, a site-specific analysis may be required.	No impact
Infrastructure			
Utilities	No impacts from classroom-based training and planning. Field-based training would occur occasionally and intermittently and is not expected to generate any additional demand for utilities. No significant impacts.	No impacts from classroom-based training and planning. Field-based training would occur occasionally and intermittently and is not expected to generate any additional demand for utilities. No significant impacts.	No impact
Solid Waste	No impacts from classroom-based training and planning. Field-based training is unlikely to require additional solid waste disposal services. No significant impacts.	No impacts from classroom-based training and planning. Field-based training is unlikely to require additional solid waste disposal services. No significant impacts.	No impact

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
Transportation Network	No impacts from classroom-based training and planning. Field-based training with vehicle operations would be intermittent and short-term in nature and would occur primarily at designated and established facilities, thereby minimizing impacts to surrounding communities and roadways. No significant impacts.	No impacts from classroom-based training and planning. Field-based training with vehicle operations would be intermittent and short-term in nature and would occur primarily at designated and established facilities, thereby minimizing impacts to surrounding communities and roadways. No significant impacts.	No impact
Socioeconomic Resources			
Economic Development	No impacts from classroom-based training and planning. No significant impacts; associated expenditures would not result in localized economic development.	No impacts from classroom-based training and planning. No significant impacts; associated expenditures would not result in localized economic development.	No impact
Demographics	No impacts from classroom-based training and planning. There would be no anticipated migration to or from a given region because of field-based training activities; therefore there would be no significant impacts to demographics.	No impacts from classroom-based training and planning. There would be no anticipated migration to or from a given region because of field-based training activities; therefore there would be no significant impacts to demographics.	No impact
Housing and Services	No impacts from classroom-based training and planning. There would be no anticipated migration to or from a given region because of field-based training activities; therefore there would be no significant impact on the demand for housing and services.	No impacts from classroom-based training and planning. There would be no anticipated migration to or from a given region because of field-based training activities; therefore there would be no significant impact on the demand for housing and services.	No impact
Environmental Justice	No impacts from classroom-based training and planning. Field-based training activities have the potential for adverse environmental justice impacts, based on their proximity to low-income or minority populations. Any changes in size, scope, or materials and equipment used for training outside of what has been previously vetted and approved may require a site-specific study to determine impacts.	No impacts from classroom-based training and planning. Impacts from field-based training may be more adverse under Alternative 2, because only previously disturbed (i.e., developed) sites would be used. A site-specific study may be required to determine environmental justice impacts.	No impact
Human Health and Safety	The implementation of planning, exercises, and classroom- and field-based training would have beneficial impacts to human health and safety by increasing readiness among	The implementation of planning, exercises, and classroom- and field-based training would have beneficial impacts to human health and safety by increasing readiness among emergency response	Adverse impacts expected; gaps in preparedness and public safety interoperability would continue.

Resource Area	Preferred Alternative	Alternative 2	No Action Alternative
	emergency response personnel. There may be adverse impacts from field-based training, depending on the types of materials and equipment used for training. A site-specific study may be required.	personnel. There may be adverse impacts from field-based training, depending on the types of materials and equipment used for training. A site-specific study may be required.	

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7.0 REFERENCES

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers), 2008. *Sound and Vibration Control Technical Committee, Generator Noise Control*. Available at: http://www.enoisecontrol.com/related_articles/generator_noise_enclosure_muffler.pdf. Accessed 13 November 2008.

BEA (Bureau of Economic Analysis), 2008. *Regional Economic Accounts, Gross Domestic Product by State, 2007.* June 2008. Available at: http://www.bea.gov/bea/regional/gsp/. To generate data used: Step 1. Select "NAICS" Industry Classification; Step 2. Select "GDP by State"; Step 3. Select "California" and "Oregon"; Step 4. Select "all industry total"; and Step 5. Select "2007". Accessed 9 December 2008.

CEQ (Council on Environmental Quality), 1993. *Memorandum to Heads of Federal Departments and Agencies Regarding Pollution and the National Environmental Policy Act.* 12 January 1993. Available at: http://ceq.hss.doe.gov/NEPA/regs/poll/ppguidnc.htm. Accessed 9 January 2009.

CEQ, 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act*. December 1997.

CIA (Central Intelligence Agency), 2008. *World Factbook, American Samoa.* Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/aq.html. Accessed 9 December 2008.

CPED (City of Minneapolis, Minnesota Department of Community Planning and Economic Development), 2008. *Land Use Definitions*. Available at: http://www.ci.minneapolis.mn.us/neighborhoods/landuse-definitions.asp. Accessed 8 January 2009.

Dahl, T. and J. Allord, 1997. *Technical Aspects of Wetlands History of Wetlands in the Conterminous United States*. USGS Water Supply Paper 2425. March 1997. Available at http://water.usgs.gov/nwsum/WSP2425/history.html. Accessed 8 January 2009.

Department of Commerce (United States Department of Commerce), 2007. *Public Safety Interoperable Communications Grant Program, Program Guidance and Application Kit, August 2007*. Available at: http://www.ntia.doc.gov/psic/PSICguidance_081607.pdf. Accessed 8 January 2009.

Dublin (City of Dublin, Ohio, Land Use and Long Range Planning), 2008. *Land Use Definitions*. Available at: http://www.dublin.oh.us/planning/pdf/LandUseDefinitions.pdf. Accessed 12 November 2008.

EPA (Environmental Protection Agency), 1974. *Protective Noise Levels, Condensed Version of EPA's Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. EPA/ONAC 550/9-74-004, March, 1974. Available at: http://nonoise.org/library/levels/levels.htm. Accessed 8 January 2009.

EPA, 1980. *Effects of Noise on Wildlife and Other Animals*. EPA 550/9-80-100. TIC 242667. December 1980.

EPA, 2003. *State NPDES Program Status*. April 2003. Available at: http://www.epa.gov/npdes/images/State_NPDES_Prog_Auth.pdf. Accessed 8 January 2009.

EPA, 2008a. *National Ambient Air Quality Standards.* October 2008. Available at: http://www.epa.gov/air/criteria.html. Accessed 8 January 2009.

EPA, 2008b. *Counties Designated "Nonattainment" or "Maintenance*. August 2008. Available at: http://www.epa.gov/air/oaqps/greenbk/mapnmpoll.html. Accessed 8 January 2009.

FAA (Federal Aviation Administration), no date. *Aircraft Noise: How We Measure It and Assess Its Impacts*. Available at: http://www.aee.faa.gov/noise/AircraftNoise.htm. Accessed July 2006.

FCCOET (Federal Communications Commission, Office of Engineering and Technology), 1999. *Questions and Answers About Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields, Bulletin 56, Fourth Edition*. August 1999.

FHWA (Federal Highway Administration), 2006. *Highway Construction Noise Handbook, August 2006*. FHWA-HEP-06-015, DOT-VNTSC-FHWA-06-02, NTIS No. PB2006-109102. Available at: http://www.fhwa.dot.gov/environment/noise/handbook/index.htm. Accessed 12 November 2008.

FWS (United States Fish and Wildlife Service), 2007. *Consultations with Federal Agencies Section 7 of the Endangered Species Act*. February 2007.

FWS (United States Fish and Wildlife Service), 2008. *Threatened and Endangered Species for U.S. States and Territories*. Available at: http://www.fws.gov/endangered/wildlife.html. Accessed 12 November 2008.

GAO (Government Accountability Office), 2007. United States Government Accountability Office. *Aviation and the Environment: Impact of Aviation Noise on Communities Presents Challenges for Airport Operations and Future Growth of the National Airspace System*. Testimony before the Subcommittee on Aviation, Committee on Transportation and Infrastructure, House of Representatives. October 24, 2007.

GPO (Government Printing Office) Access, 2008. National Archives and Records Administration. *40 CFR §93.153, Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. November 2008.

Healy, M., 2008. *Physiographic Regions of North America*. Available at: http://www.harpercollege.edu/mhealy/g101ilec/namer/nad/naphys/naphystx.htm#can. Accessed 12 November 2008.

IWGSDI (Interagency Working Group on Sustainable Development Indicators), 1996. *Agricultural Land and Categories*. June 1996. Available at: http://www.hq.nasa.gov/iwgsdi/Agricultural_Land.html. Accessed 8 January 2009.

Lew, A., 2004. *Geography: USA*. 2004. Available at: http://www.geog.nau.edu/courses/alew/ggr346/text/chapters/ch12.html. Accessed 8 January 2009.

NMFS (National Marine Fisheries Service), 2008. Species Information. Available at: http://www.nmfs.noaa.gov/pr/species. Accessed 8 January 2009.

NPS (National Park Service), 1998. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. 1990, revised 1992, 1998. Available at: http://www.nps.gov/history/nr/publications/bulletins/nrb38/. Accessed 8 January 2009.

NPS, 2008. *Technical Assistance Manual: Compliance with the National Environmental Policy Act and the National Historic Preservation Act.* March 2008. National Park Service Intermountain Region, Denver, Colorado.

Pidwirny, M. 2007. *Terrestrial biome*. S. Draggan and M. McGinley (Topic Editors). In: Encyclopedia of Earth. Eds. Cutler J. Cleveland (Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment). [First published in the Encyclopedia of Earth October 17, 2006; last revised December 4, 2007; retrieved 7 January 2009]. <http://www.eoearth.org/article/Terrestrial_biome>

Purdue (Purdue University), Agricultural and Biological Engineering Department. 2005. *Private Water Education System*. July 2005. Available at: http://www.purdue.edu/envirosoft/private/src/water.htm. Accessed 8 January 2009.

SAIA (San Antonio International Airport), 2008. *Aircraft Noise Regulations*. Available at: http://www.sanantonio.gov/aviation/info_noise_regulations2.asp. Accessed 9 January 2009.

USACE (United States Army Corps of Engineers), 1987. USACE Wetlands Delineation Manual. Available at: http://www.wetlands.com/regs/tlpge02e.htm. Accessed 13 November 2008.

USCB (United States Census Bureau), 2008. *Poverty Thresholds for 2007 by Size of Family and Number of Related Children Under 18 Years*. 2008. Available at: http://www.census.gov/hhes/www/poverty/threshld/thresh07.html. Accessed 8 January 2009.

USCG (United States Coast Guard), 2006. *Programmatic Environmental Impact Statement (PEIS) for Implementation of the USCG NAIS Project.* October 2006.

USDA (United States Department of Agriculture), 2000. Natural Resources Conservation Service. *Acres of Prime Farmland, 1997, revised December 2000*. December 2000.

USDOT (United States Department of Transportation), 2008. *The National Highway System.* Accessed January 2009. Available at: http://www.fhwa.dot.gov/planning/nhs/. Accessed 12 December 2008.

USGBC (U.S. Green Building Council), 2006. *Leadership in Energy and Environmental Design (LEED) for Schools, Public Review Draft*. August 2006. Available at: http://www.usgbc.org/ShowFile.aspx?DocumentID=1753. Accessed 8 January 2009.

USGS (United States Geological Survey), 1999. Circular 1186, *Sustainability of Ground-Water Resources.* Denver, CO. 1999. Available at: http://pubs.usgs.gov/circ/circ1186/html/gen_facts.html. Accessed 8 January 2009.

USGS, 2003. *A Tapestry of Time and Terrain: The Union of Two Maps, Geology and Topography.* Available at: http://tapestry.usgs.gov/physiogr/physio.html. Accessed 8 January 2009.

USGS, 2008a. *Irrigation Water Use.* Available at: http://ga.water.usgs.gov/edu/wuir.html. Accessed November 2008.

USGS, 2008b. *North American Migration Flyways*. Available at: http://alaska.usgs.gov/science/biology/avian_influenza/images/NA_migration_flyways.gif Accessed 12 November 2008.

Virginia Tech, 2008. *The Forest Community: Biomes.* Available at: http://www.fw.vt.edu/dendro/Forsite/biomes.htm. Biome information reprinted from: College of Agriculture, Department of Forestry, University of Illinois, Urbana, 1974, Accessed 12 November 2008.

WWF (World Wildlife Fund), 2006a. *Alaskan North Slope Coastal Tundra—A Global Ecoregion*. Available at: http://www.panda.org/about_wwf/where_we_work/ecoregions/alaskan_coastal_tundra.cfm. Accessed 13 November 2008.

WWF, 2006b. *Temperate Coniferous Forest Ecoregions*. Available at: http://www.panda.org/about_wwf/where_we_work/ecoregions/about/habitat_types/selecting_terrestrial_ecoregions/habitat05.cfm. Accessed 13 November 2008.

WWF, 2006c. *Temperate Grasslands, Savannas and Shrubland Ecoregions*. Available at: http://www.panda.org/about_wwf/where_we_work/ecoregions/about/habitat_types/selecting_terrestrial_ecoregions/habitat08.cfm. Accessed 13 November 2008.

WWF, 2006d. *Deserts and Xeric Shrubland Ecoregions*. Available at: http://www.panda.org/about_wwf/where_we_work/ecoregions/about/habitat_types/selecting_terrestrial_ecoregions/habitat13.cfm. Accessed 13 November 2008.

APPENDIX A STATE PSIC GRANT FUNDING (TOTAL AS OF OCTOBER 2008)

State or Territory	PSIC Funding	STR Funding
Alabama	$13,585,399	$ 1,052,169
Alaska	$ 7,250,345	$ 561,529
American Samoa	$ 691,948	$ 53,590
Arizona	$17,713,050	$ 1,371,850
Arkansas	$ 11,169,402	$ 865,054
California	$ 94,034,510	$ 7,282,835
Colorado	$ 14,336,638	$ 1,110,352
Connecticut	$ 12,999,879	$ 1,006,822
Delaware	$ 8,196,842	$ 634,833
District of Columbia	$11,857,972	$ 918,383
Florida	$ 42,888,266	$ 3,321,633
Georgia	$ 25,311,354	$ 1,960,327
Guam	$ 2,600,678	$ 201,419
Hawaii	$ 8,069,879	$ 625,000
Idaho	$ 7,289,795	$ 564,584
Illinois	$ 36,414,263	$2,820,231
Indiana	$ 18,291,735	$ 1,416,668
Iowa	$ 10,935,974	$ 846,975
Kansas	$ 10,667,169	$ 826,157
Kentucky	$ 15,405,625	$ 1,193,143
Louisiana	$ 19,672,287	$ 1,523,590
Maine	$ 7,567,579	$ 586,098
Maryland	$22,934,593	$ 1,776,251
Massachusetts	$ 21,191,988	$ 1,641,288
Michigan	$ 25,039,781	$ 1,939,294
Minnesota	$ 14,262,071	$ 1,104,577
Mississippi	$ 10,989,345	$ 851,109
Missouri	$ 17,465,576	$ 1,352,683
Montana	$ 6,549,685	$ 507,263
Nebraska	$ 8,582,108	$ 664,672
Nevada	$ 12,042,417	$ 932,668
New Hampshire	$5,966,760	$ 462,117
New Jersey	$ 30,806,646	$ 2,385,930
New Mexico	$ 8,288,725	$ 641,950
New York	$ 60,734,783	$ 4,703,820
North Carolina	$ 22,130,199	$ 1,713,952
North Dakota	$ 7,052,490	$ 546,205
Northern Mariana Islands	$ 719,236	$ 55,704
Ohio	$ 29,377,337	$ 2,275,232
Oklahoma	$ 11,684,183	$ 904,923
Oregon	$ 12,182,532	$ 943,519
Pennsylvania	$ 34,190,555	$ 2,648,008
Puerto Rico	$ 9,590,025	$ 742,733
Rhode Island	$ 7,365,694	$ 570,462
South Carolina	$ 13,499,308	$ 1,045,502
South Dakota	$ 6,549,691	$ 507,264

State or Territory	PSIC Funding	STR Funding
Tennessee	$ 17,540,752	$ 1,358,506
Texas	$ 65,069,247	$ 5,039,518
U.S. Virgin Islands	$ 856,907	$ 66,366
Utah	$ 10,353,261	$ 801,845
Vermont	$ 4,476,761	$ 346,719
Virginia	$ 25,012,521	$ 1,937,183
Washington	$ 19,180,347	$ 1,485,490
West Virginia	$ 8,429,484	$ 652,851
Wisconsin	$ 15,367,216	$ 1,190,168
Wyoming	$ 5,952,187	$ 460,988
Total	$968,385,000	$ 75,000,002

Source: *Department of Commerce, 2007.*

APPENDIX B REFERENCE WEBSITES

Designated Nonattainment Areas for All Criteria Pollutants
http://www.epa.gov/oar/oaqps/greenbk/astate.html

USGS National Water Information System
http://waterdata.usgs.gov/nwis.

STOrage and RETrieval System for Water and Biological Monitoring Data (STORET)
http://www.epa.gov/storet/

National Estuary Program Coastal Condition Report
http://www.epa.gov/owow/oceans/nepccr/index.html

National Coastal Condition Report II
http://www.epa.gov/owow/oceans/nccr/2005/index.html

Wadeable Streams Assessment: A Collaborative Survey of the Nation's Streams
http://www.epa.gov/owow/streamsurvey/

Bird Species Protected by the Migratory Bird Protection Act
http://www.fws.gov/migratorybirds/intrnltr/mbta/mbtintro.html

U.S. Fish and Wildlife Service Tower Siting Guidelines
http://www.fws.gov/migratorybirds/issues/towers/comtow.html

Federal Communications Commission TOWAIR System
http://wireless2.fcc.gov/UlsApp/AsrSearch/towairSearch.jsp